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THE
RURAL ECONOMY
OF
NORFOLK:

COMPRISING THE
Management of Landed Estates,
AND THE
PRESENT PRACTICE of HUSBANDRY
IN THAT COUNTY.

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(Author of MINUTES OF AGRICULTURE, &c.)
RESIDENT upwards of Two Years in NORFOLK.

THE SECOND EDITION.

IN TWO VOLUMES.

VOL. I.

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A D D R E S S

T O T H E

P U B L I C.

THE utility of full and faithful Registers of the present practice of Husbandry, in well cultivated Districts, occurred to me about ten years ago;—when, in a journey of four or five hundred miles through the central parts of the Island, I experienced the inutility of a *transient view*; but, at the same time, clearly saw the advantages which would accrue from a TWELVEMONTH'S RESIDENCE in the immediate District of the practice to be registered. At that time, however, I was too busily employed in registering my own practice * to think of

* See MINUTES OF AGRICULTURE in SURREY:

extending my Register, in any way, to the practice of others.—But being fortunately released from my connexion in Surrey, and having prepared for publication my *EXPERIMENTS and OBSERVATIONS concerning AGRICULTURE and the WEATHER*, I found leisure to reflect more maturely on the means of perfecting the system, which I had, with much deliberation, sketched out, and which I had in part filled up, from my own practice.

In February 1780, I submitted to the Society of Arts in London, as the first Society, professedly Agricultural, in the kingdom, the following Plan.

P L A N

FOR PROMOTING

A G R I C U L T U R E.

THE knowledge of Agriculture either results from experience, simply ; or is acquired through the united efforts of experience and theory.

Theory may facilitate, by analyzing the subject, and giving a comprehensive view of the science in general ;---elucidate, by commenting on the experience already acquired ;---accelerate, by proposing fit subjects for future investigations ;---but cannot convey any certain information without the aid and concurrence of experience.

The experience of Agriculture is acquired through adequate observation, either on self-practice, or on the practice of others.

The practice of an individual, however, is generally limited to some parti-

cular branch of management, on some certain soil and situation; and a general knowledge of Agriculture must not be expected from the practice of any one man.

A man, nevertheless, who has spent a long life in the practice of some certain department, must necessarily have acquired a considerable share of knowledge of that particular department: and it is probable, that were the knowledge of the individuals who excel in the several departments of husbandry, ---were the knowledge of the ablest farmers in the best-cultivated parts of the island collected——English Agriculture would be found, at this day, to be far advanced towards perfection.

But the individuals who excel in agriculture are unknown to each other; and, if associated, could not probably communicate their knowledge, with any degree of precision: for their art being the result of habit, it is too familiar to be minutely described. Their
farms

farms are the only records in which it is registered, and even there it is as fleeting as the hour in which it is performed. Nothing but actual observation, and immediately registering, in writing, the several operations, as they pass throughout the year, can render the practice of individuals of extensive service to the Public.

In short, the art of agriculture must ever remain imperfect while it is suffered to languish in the memory, and die with the practitioner: RECORD, only, can perpetuate the art; and SYSTEM, alone, render the science comprehensive*.

Mr. Marshall has already submitted to the Public a register of his own practice during five years; comprehending a plan for acquiring agricultural knowledge, systematically, from

* What Dr. Johnson says of Language is applicable to Agriculture—"Diction merely vocal is always in its childhood. As no man leaves his eloquence behind him, the new generations have all to learn."
—*Journey to the Western Islands of Scotland.*

self-practice * ; which plan is equally applicable to the practice of others ; provided the observations be performed without remission, and by one who is accustomed to agricultural observation. He has also endeavoured to trace out the foundation of a system, so far as his own practice has extended.

HIS PRESENT PLAN is, to extend his observations to the practice of others ; more especially as it appertains to the breeding, rearing, and fattening of cattle ---to the dairy management,---to the management of sheep,---to the draining and watering of meadows,---and to the grass-land, or ley-management in general. After he is become proficient in these departments, his intentions are to extend his SURVEY OF PROVINCIAL AGRICULTURE to the arable or plow-management.

His intended mode of observation is this : Having pitched upon the branch of management to be studied, and the

* See Experiments and Observations, as above.

district which excels in the practice of that particular branch, he proposes to fix his place of residence, during TWELVE MONTHS, in a farm-house;--if possible, in the house of the best-informed farmer in the district pitched upon; and there, with daily attention, minutely observe and register the living practice which surrounds him: not the practice of theoretical, but of professional farmers; or rather the provincial practice of the district, county, or country observed; nevertheless attending to improvements and excellencies, by whomsoever practised,

Nor is his plan confined merely to observation: he means to acquire by self-practice a competent knowledge of the MANUAL OPERATIONS incident to the department of husbandry which is the immediate object of his study; as also to collect such IMPLEMENTS and UTENSILS as may appear peculiarly adapted to the purposes for which they are severally intended; not sketches nor
models,

models, but the instruments themselves which he has seen in common use; and of whose uses he has acquired, by manual practice, an adequate knowledge.

In order to furnish himself with every advantage which may forward his general design, his further intentions are to employ his leisure in taking a complete REVIEW OF WRITTEN AGRICULTURE, from Fitz-Herbert, in 1534, to the present time (excepting the works of such authors as may be living at the time of closing the review); and, after his judgment has been matured by a survey of provincial practice to compress into as narrow a compass as may be, the useful information relative to British Agriculture, which has been already recorded; whether it appears in incidents and experiments sufficiently authenticated, or in hints which may furnish subjects for future experiment.

Briefly,—his plan is, reciprocally to receive and to offer information;—to

COIR-

communicate provincial practice to the Public at large ;—to collect and compress the useful information which is at present widely scattered in almost numberless volumes ;—and to reduce these joint accumulations of agricultural knowledge to systematic science : consequently, to offer to the present and succeeding generations a comprehensive **SYSTEM OF ENGLISH AGRICULTURE**, as it now stands ;—and to raise it on a basis so ample and scientific, as that future acquisitions may be added to it from time to time.

ON

ON THE EIGHTH of the succeeding month the SOCIETY were pleased to pass the following Resolutions :

“ RESOLVED,

“ THAT the collecting a general
“ knowledge of the Agriculture of
“ the kingdom, as proposed by Mr.
“ Marshall, may be highly useful.

“ RESOLVED,

“ THAT as it is not the practice of the
“ Society to adopt the execution of
“ plans of this kind, the Society cannot
“ engage in the undertaking.

“ RESOLVED,

“ THAT Mr. Marshall have liberty to
“ consult the Books of Agriculture in
“ the possession of the Society, and to
“ inspect the several Machines and
“ Models in their repositories.”

THESE

THESE RESOLUTIONS, though they afforded no real assistance, served to establish the usefulness of the plan. The means of carrying it into execution remained now the only object of consideration. An application to PARLIAMENT was thought of, and strongly recommended, but at a time when public economy had become a necessary and prevailing principle, and when the immediate preservation of the State called for every hour of parliamentary deliberation, it would have been highly improper to have attempted to draw off the attention of Parliament to any other object, however useful.

But being thus embarked, it was thought adviseable to proceed so far, at least, as to make the Plan *known* to those whom it particularly concerns;—and it was accordingly communicated to several of the principal Nobility, and to some few Gentlemen of landed Property. Its reception, however, was not such as I considered it to be entitled to; and in this specimen there were sufficient grounds to convince me of what might be expected from INDIVIDUALS.

I there-

I therefore folded my Plan ;—with; however, a degree of *reluctance* ;—because I was confident that, were it carried into execution; it would be productive of much public good ;---but without any share of *regret* ;---because I had fully discharged my duty to my COUNTRY, to my *profession*, and to *myself*.

In August 1780, I went down into Norfolk, as agent to Sir HARBORD HARBORD's estate ;---one of the first in that county.

The management of *Estates*, though a sister-art to Agriculture, or the management of *Farms*, was in a manner new to me ; and, though intimately connected with my Plan, had never struck me, as being, what it really is, an inseparable department of RURAL ECONOMY. Estate-Agency, it is true, has always been treated of by writers as a distinct subject ; but it has generally been found proper to explain, in the same book, the leading branches of Agriculture ; for, beyond dispute, the management of an Estate cannot be conducted

ducted with propriety by any man unacquainted with the management of a Farm.

Norfolk is not more celebrated for its system of husbandry, than for a superior knowledge in the management of landed Estates, which is there reduced to a regular business.

I was singularly fortunate in my situation. I had not only an opportunity of seeing the effects of improper management committed by those who had gone before me; but of profiting by my own experience (thereby much extended) in endeavouring to do away the evil effects.

With respect to husbandry, too, I had every advantage: I had an opportunity of employing my leisure in actual practice, on a large scale: the Agency, of course, afforded me an extent of country to range over, and make my observations upon, at will: and, I am happy in being able to add, a number of sensible men,---some of them at the head of their profession,---were always ready to give me,
without

without reserve, every information I asked for.

Thus,--in a manner totally unforeseen ---I became possessed of an opportunity, not only of extending my plan to an important purpose I had not thought of, but of executing the part I had proposed, in a manner which the whole Landed Interest could not, without an Agency, have enabled me to have done.

I therefore embraced every opportunity of registering the useful ideas which occurred, whether in husbandry, or in estate-agency; but (I think proper to mention in this place) without any view, *at that time*, of carrying the whole of my plan into execution. At length, however, finding, that I could no longer conduct the estate, in a manner, which, to my own mind, appeared to be right;---I lost no time in finishing a Register of the Rural Economy of the county; and, in November 1782, I left Norfolk.

Having thought it necessary to say this much, in explanation of the following work;

THE
RURAL ECONOMY
OF
NORFOLK.

I.

THE DISTRICT.

THE COUNTY, considered as a subject of RURAL ECONOMY, is aptly divisible into EAST, WEST, and SOUTH NORFOLK.

THE SOUTHERN Hundreds partake of the Suffolk practice; and, though well cultivated, do not exhibit, in its purity, the NORFOLK SYSTEM OF HUSBANDRY.

THE WESTERN division is either marshy, low land, applied chiefly to the dairy, after the manner of Cambridgeshire; or open sheep-walks and extensive heaths, whose stock are

VOL. I.

B

sheep

sheep and rabbits; or newly inclosed country (chiefly of the last description), in which no general plan of management has yet taken place.

IN EAST NORFOLK, alone, we are to look for that regular and long-established system of practice which has raised, deservedly, the name of Norfolk husbandmen; and which, in a principal part of *this* District, remains unadulterated to the present time*.

THE CLIMATE of East Norfolk is cooler than that of other Districts, in this Island, situated on the same degree of latitude; namely, fiftythree degrees. The seasons, here, are from a week to ten days later than they are in the neighbourhood of the metropolis.

* The largest fortunes have been made by farmers in West Norfolk: not, however, by any superior system of management practised in that division of the county; but through extensive tracts of sheep-walks, and other *fresh ground*, held by individuals, having been *inclosed, marled, broken up*, and subjected to the *management of East Norfolk*; where farms being comparatively small, and having been inclosed, marled, and plowed, time immemorial, there was not room to make a MALLET,—a DURSGATE,—or a MARTIN. Viewing the state of husbandry in West Norfolk collectively, it is much beneath that of the District here described.

THE

THE SURFACE OF this District, though the soil be dry, is an almost uniform flat ; except a border toward the seacoast, which is broken, and, in many places, bold and picturesque ; and, excepting the more southern Hundreds, in which marshes, fens, and lakes, provincially “ BROADS,” some of them of considerable extent, abound.

THE RIVERS of East Norfolk are small and few in number ; but its RIVULETS are numerous ;—intersecting its flatted surface in a singular and happy manner.

INLAND NAVIGATIONS. Notwithstanding, however, the smallness of the rivers, the natural flatness of the country renders them capable of being made navigable : the Yare furnishes a RIVER NAVIGATION between Yarmouth and Norwich ; as the Thyrn, called the North River, does from Yarmouth, through the Broads, to Dilham near North Walsham ; and out of this proceeds a CANAL NAVIGATION to Aylesham.

THE ROADS, notwithstanding King Charles was pleased to say the county of Norfolk was only fit to be cut out into roads for the rest of his kingdom, are unpardonably bad ;—

B 2

narrow,

narrow, shaded, and *never mended*: they are numerous, however, especially the bridle roads; so that a traveller, on horseback, has generally the choice of two or three ways, of nearly equal length, to the same place. Not a foot of turnpike road in the District; excepting the road between Norwich and Yarmouth.

THE INCLOSURES are, in general, small, and the hedges high and full of trees. This has a singular effect in travelling through the country: the eye seems ever on the verge of a forest, which is, as it were by enchantment, continually changing into inclosures and hedge-rows. There is not, generally speaking, a piece of woodland or a coppice in the whole District; and even plantations are thinly and partially scattered. A common or a heath (which not unfrequently occurs even in this part of Norfolk) is the only variety the face of the country affords. Some remnants of common fields still remain; but, in general, they are not larger than well sized inclosures. Upon the whole, East Norfolk at large may be said to be A VERY OLD-INCLOSED COUNTRY.

THE

THE TOWNS of East Norfolk are few: *Norwich*, *Yarmouth*, and *North Walsham*, are its principal MARKETS. But the smaller PORTS of *Blakeney*, *Cromer*, and *Munsley*, are beneficial in assisting to draw off the produce of the District; especially that of the northern Hundreds.

For a particular description of the Fleg Hundred, see MIN. 106.

Of the eastern coast, see MIN. 112.

Of Blowfield Hundred and the Yarmouth Marshes, see MIN. 118.

2.

E S T A T E S.

FORMERLY, in this District, were many small Owners—Yeomen—provincially called “Statefmen,” who cultivated their own estates. —There were instances of entire parishes being occupied by this respectable class of men. But, among other evil effects of that inordinate passion for farming which prevailed some years ago, the decline of the independency of this country is a striking one.

The yeomanry, heretofore independant and respected, seeing men, whom they had lately held as their inferiors, raised, by an excessive profit which had recently been made by farming, to a degree of affluence superior to their own, and living in a style of extravagance their ancestors had been strangers to, became dissatisfied with the homeliness of their situation in life, and either launched out
into

into extravagances ill suited to their income, or *voluntarily* sold their comparatively small patrimonies, in order that they might, agreeably with the fashion or frenzy of the day, become great farmers.

By this means many of those comfortable places which were thickly scattered over East Norfolk, have fallen into the hands of men of fortune; and are now become united with their large estates.

There are, nevertheless, some few small owners still remaining; but very few of the possessions, even of those, are FREEHOLD; the COPYHOLD tenure being prevalent throughout the District; which contains some very extensive, and, even to this day, lucrative, MANORS.

3.

F A R M S.

THE FARMS of East Norfolk are principally *inclosed*; there being, as has been already observed, few common fields at present in this District; and these few are in general very small; ten, twenty, or thirty acres; cut into patches and shreds of two or three acres, down to half an acre, or, perhaps, a rood each*.

But another species of intermixture, much more disagreeable to the occupier, is here singularly prevalent. It is very common for an inclosure, lying, perhaps, in the centre of an otherwise entire farm, to be cut in two by a slip of glebe or other land lying in it; and still more common for small inclosures to be similarly situated.

* The central parts of the District are more particularly spoken of: towards the north coast, some pretty extensive common fields still remain open; and some few in the southern Hundreds,

These

These inconveniences have, no doubt, arisen from common fields having been inclosed by piecemeal, without the general consent of the proprietors. They are, however, inconveniences which are every year decreasing: many beneficial exchanges of intermixed lands have lately taken place, and many more equally advantageous remain yet to be made (see MIN, 4. on this subject).

But notwithstanding these intermixtures and irregularities are still too prevalent, and notwithstanding scattered and "one-sided" farms are singularly abundant, there are many compact ring-fence farms to be met with in the District.

THE SIZES OF FARMS, at present, are of the middle cast; few under fifty pounds, and fewer above three hundred pounds a year. Formerly they were much smaller; but the numerous little places of the yeomanry having fallen into the hands of men of fortune, and being now incorporated with their extended estates, are laid out into farms of such sizes, as best suit the interest, or the convenience, of the present proprietors,

THE

THE CHARACTERISTIC OF FARMS, in this District, is, invariably, ARABLE UPLAND;—with, generally, a small proportion of moory grafsland, called MEADOW. Many, however, of the fmaller farms, and fome of thofe of confiderable fize, have no grafsland whatever belonging to them. In this cafe MARSHES, or GRAZING GROUNDS, at, perhaps, twenty or thirty miles diftance, are frequently hired by the occupiers of thefe farms.

But, viewing the Diftrict at large, the grafsland bears fo fmall a proportion to the arable, that its diftinguifhing characteristic is that of an ARABLE COUNTRY.

SOILS.

4.

S O I L S.

A SINGULAR uniformity of soil prevails throughout this country: there is not, perhaps, an acre in it, which does not come under the idea of a SANDY LOAM.

Its quality, however, varies widely, both as to texture and productiveness. The northern part of the District abounds with barren heaths and unfertile inclosures; while the southern Hundreds are principally covered with a richer, deeper, highly productive soil.

The soil, in general, however, may be termed shallow: perhaps six, perhaps five, inches may be taken as the medium depth.

Immediately under the cultivated soil, a hard crust—provincially “the PAN”—occurs universally; and, under this, substrata of various qualities: an unfathomable ocean of *sand* may be considered as the prevailing substratum. In some places a hungry *gravel*, but more frequently an absorbent *brickearth*, is the immediate

mediate SUBSOIL. *Marl* sometimes rises to near the surface, but seldom so high as the *pan*.

This seems to be universally considered as a distinct something, poisonous in its nature, and partaking neither of the soil nor the subsoil. It is not my intention to ridicule this received opinion; it may be well founded; but, to me, the *pan* appears to be a production not of nature, but of art; or, to speak more accurately, a consequence of the Norfolk culture carried on, time immemorial, with the Norfolk plow;—whose broad flat share being held invariably in a horizontal position, and (unless in fallowing) invariably at the same depth, the surface of the subsoil becomes formed, by the action of the share, the pressure and sliding of the heel of the plow, and the trampling of the horse, into a firm even floor, upon which the soil is turned, and re-turned, in the same manner it would be, if spread on a floor of stone, or other material.

But be this as it may, and whether the *pan* be a natural or a factitious production,—it is a fact well established, that breaking it up by plowing below the accustomed depth, is very injurious to succeeding crops.

Two

Two reasons may be offered in explanation of this effect; the pan, year after year, and, perhaps, century after century, has been a receptacle of the seeds of weeds; which, by being trodden or otherwise pressed into it, have remained there, locked up from the sun and air, and thereby deprived of the power of vegetation. But no sooner are these seeds released from their confinement by being brought to the surface with the plow, than they vegetate in myriads, to the annoyance of the crop.

The other reason is this:—the firm close contexture of the pan renders it in a degree watertight; it is, at least, a check to the rain-water, which sinks through the soil; prolonging its stay in the sphere of vegetation. But the pan being broken, the filter is no more; and the rain, which is not immediately retained by the soil, escapes irretrievably into an insatiable bed of sand,—or some other absorbent subsoil.

For, if we except a few quicksands, which occur on the margins of meadows, and the peat bogs which occupy their areas, there is not, in the District, an acre of retentive SUBSOIL.

The

The Norfolk soil, however, is not without its partial evils:—"scalds" are as pernicious in Norfolk, as quicksands and springy patches are in cold-soiled countries; and, what is worse, they are, perhaps, incurable; while a partial retentiveness may be easily removed.

These SCALDS are probably occasioned by a partial absorbency; namely, by a *more* absorbent subsoil being interspersed in patches among one which is *less* absorbent; and, generally, perhaps, by "heads" or prominent parts of the universal substructure sand, rising up through a stratum of brickearth; in the manner that "heads of marl" shoot up towards the surface: as will be described in the next section.

For instances of the absorbency of the Norfolk subsoil, see MIN. 59.

For observations on the ditchmould of Norfolk, see MIN. 77.

For observations on the soils of the Fleg Hundreds, see MIN. 106.

For general observations on the friability of the Norfolk soils, see MIN. 106.

For

For observations on the soil of the eastern coast, see MIN. 112.

For observations on the soil of Blowfield Hundred, see MIN. 118.

For instance of scalds being injured by wet weather, see MIN. 121.

5.

M A N U R E S.

UNDER this head I purpose to enumerate the different *species* of manure; and describe, so far as the observations I have been able to make will enable me, their respective *natures*.

The principal species made use of in this District are:—

Marl,	Dung,
Clay,	Compost,
Mould,	Teathe of cattle,
Lime,	Sheepfold,
Ashes,	Soot, Rapecake,
	Maltduft, &c.

The

I. The grand fossil manure of Norfolk is MARL; through whose fertilizing quality, judiciously applied, lands, which seem by nature to have been intended as a scanty maintenance for sheep and rabbits, are rendered capable of fattening bullocks of the largest size, and of finishing them in the highest manner.

There are, in this District, two species of marl, very distinct in their general appearances; though their quality of fertilizing be similar.

The central and northern parts of the District abound, universally, with a whitish-coloured CHALK MARL; while the Fleg Hundreds, and the eastern coast, are equally fortunate in a grey-coloured CLAY MARL.

The first has, in all probability, been in use as a manure many centuries: there are oaks of considerable size now going to decay in pits which have obviously been heretofore in use, and which, perhaps, still remain in use, as marlpits.

The use of clay marl, as a manure, seems to be a much later discovery; even yet, there are farmers who are blind to its good effect; because it is not *marl*, but “clay;” by which name it is universally known.

The

The name, however, would be a thing of no import, were it not indiscriminately applied to unctuous earths in general, whether they contain, or not, any portion of calcareous matter. Nothing is "marl" which is not white; for, notwithstanding the county has been so long and so largely indebted to its fertilizing quality, her husbandmen, even in this enlightened age, remain totally ignorant of its distinguishing properties: through which want of information much labour and expence is frequently thrown away.

One man seeing the good effect of the Fleg clay, for instance, concludes that all clays are fertile; and, finding a bed of strong brick earth upon his farm, falls to work, at a great expence, to "claying:"—while another observing this man's miscarriage, concludes that all clays are unprofitable; and, in consequence, is at an expence, equally ill applied, of fetching "marl" from a great distance; while he has, perhaps, in his own farm, if judiciously sought after, an earth of a quality equally fertilizing with that he is throwing away his time and his money in fetching.

This is a strong evidence of the utility of chemical knowledge, in the investigation of fossil manures.

Before I left the county, I collected a variety of specimens of marls, clays, and soils of different parts of it. These, with a still greater variety which I have collected in other parts of the kingdom, I hope to find leisure, at some future time, to analyze ; and, from the results, endeavour to draw some general inferences.

At present I shall confine myself to

1. The chalk marl of Thorp-market, in the Hundred of North Erpingham ;
2. The clay marl of Hembsby, in the Hundred of East Fleg ;
3. The soft chalk of Thorp-next-Norwich ; commonly called Norwich marl ; and to
4. The hard chalk of Swaffham.

1. CHALK MARL OF THORP-MARKET.

The natural situation of the white marls of this District is singular : they do not lie in strata, as fossils in general do ;—nor in a continuation of rock, like chalk and limestone ;
but

but in distinct masses, of different figures and magnitudes, rising with irregular heads toward the surface, and sinking to, perhaps, ten, perhaps twenty feet deep, and sometimes to a depth unfathomed. If the abyss of sand, in which they lie buried, could be rendered transparent, these *clouds* of marl would, I apprehend, be seen scattered under the surface of this country, in resemblance of the clouds of vapour, which we frequently, in summer, see suspended in the atmosphere.

The general appearance of these marls differs not only in different beds or “jams;” but the same jam generally affords marl of different appearances and qualities: the upper part is usually fouler and more friable, while the lower parts of the jam are of a purer, firmer, more chalk-like nature; and are usually interspersed with “chalkstones;”—namely, lumps of *chalk*, firm enough to be used in writing; and with *flints*, similar to those usually found in chalkpits of other districts.

The specimen before me was taken from the middle of a tenfoot jam. The general appearance is that of a dirty, rough, friable

C 2

chalk;

chalk; its *colour* being somewhat darker, and its *texture* somewhat softer, and more brittle, than the common writing chalks of Surrey and Kent.

In the open air, it *breaks* readily, and incorporates freely with the soil.

In water, it *falls* in a manner instantaneously *; but *dissolves* not, in any proportion, in this element †.

In the fire, it loses more than one third of its weight ‡, and burns to *lime* §.

* A piece of this *marl* plunged into water fell with a smart crackling noise in a few seconds: but a small piece of *chalk* contained in it, received no change from the water. Hence we have a simple *differential test* of these two fossils.

† One hundred grains—pulverized, dried, weighed, placed in a filter, flooded repeatedly with cold and warm water, dried, weighed—received not the smallest perceptible diminution of weight.

‡ A piece, weighing fifty grains, retained in a strong fire three hours, lost eighteen grains and a half; weighing, when cool, thirtyone grains and a half.

§ The pit from whence the specimen made use of in this analysis was taken, being worked as a lime-quarry, I had repeated opportunities of observing the effect of the lime, both as a manure and as a building-material. Its strength and operation, in both cases, are, as far as common observation can judge, similar to those of the chalk limes of Surrey and Kent.

In

In the acid of sea salt, the principal part of it is *dissolved*, and taken up by the acid; leaving a small proportion, of gross earthy matter, undissolved. Of one hundred grains of this marl,—pulverized, dried, weighed, mixed with water, and saturated with this acid,—eighty-five grains pass through the filter; leaving a residue of fifteen grains: two thirds of which is palpable, consisting chiefly of sand and flint; one third a fine impalpable claylike matter; mixing freely with water;—some part of it subsiding with reluctance.

A solution of salt of tartar, added to the filtered liquor, precipitates the *whole* of the dissolved matter; in a *snow-white powder*: which being retained two hours and a half in a strong fire, loses five twelfths of its weight *, and is concreted into a porous, friable, *ash-coloured* mass of quicklime; which being re-suspended in acid, and again precipitated, regains the weight lost in the fire, and regains its *snowy whiteness*.

* Thirty grains of the powder perfectly dried, lost somewhat more than twelve grains and a half; the lime, when taken out of the crucible, weighing somewhat less than seventeen grains and a half.

Therefore, it is highly probable, that the soluble matter of this marl is a pure, or nearly a pure, *calcareous earth* *.

We may therefore venture to set down, as the component parts of one hundred grains of this marl, which may be taken as a fair specimen of the white marls of this District,

85 grains of chalk,

10 grains of sand,

5 grains of clay.

100 grains.

2. The CLAY MARL of HEMSBY.

In its natural state, it is situated in extensive beds or jams of considerable depth (see MIN. 106). Its *colour*, when dry, somewhat lighter than that of fullersearth, slightly tinged with specks of a yellowish brown colour : its *contexture* that of a gritty fullersearth, interspersed with granules of white chalk.

• The lime has a perceptible, but very faint *yellowish* tint. By the addition of a tincture of galls the ultimate filtered liquor becomes turbid : a *white* mucilage subsides ; leaving a transparent *green* liquor. A tincture of galls added to the lime-water, before the addition of the acid, has a somewhat similar effect. But, previous to the calcination, tincture of galls produces no change whatever upon this marl, either in a diluted or a dissolved state.

In

In the open air, it breaks into small squares ; and mixes freely with the soil.

In water, it falls readily ; but dissolves not.

In the fire, it burns to brick.*

In the acid of sea salt, part of it is dissolved ; but the major part is indissoluble. Of one hundred grains, fortythree grains, only, pass through the filter ; leaving a residuum of fiftyseven grains ; fifty grains of which is an impalpable claylike matter ; the remaining seven grains palpable ; chiefly sand ; but mixed with some beautifully coloured granules and fragments.

A solution of salt of tartar precipitates the whole of the dissoluble matter ; which falls of a pure white ; but dries to a somewhat yellowish powder ; which in burning loses exactly five twelfths of its weight ; and concretes into a mass of sulphurcoloured lime : which being

* A piece weighing fifty-two grains was kept in a strong fire more than two hours. Its colour was changed to a faint red, or fleshcolour ; its contexture to that of a hard-burnt brick, unchangeable in water ; its weight forty grains. Being pulverized and saturated with the acid, the filtered liquor afforded, by an addition of the alkali, a greycoloured mucilage, which fell reluctantly, and dried to a pale cinnamoncoloured substance.

In the open air *.—

In water, it neither falls †, nor dissolves.

In the fire, it burns to *lime*, losing one third of its weight in the fire.

In the acid of sea salt, almost the whole of it is dissolved. Of one hundred grains, ninety-eight pass through the filter; leaving only two grains of residue. Principally a dark brown rust-like matter; fine enough to lodge itself in the pores of the paper, leaving only a few particles of sand upon the filter.

A solution of the salt of tartar precipitates the dissolved matter in a *white mucilage*, which dries to a *yellowish white powder*; which, being retained three hours in a strong fire, loses a portion of its weight, and is converted into a friable mass of *yellowish white quicklime*: which being re-dissolved and re-precipitated,

* Having omitted to make an *intentional observation* on this circumstance, I cannot speak to it positively; but, from the small quantity usually set on, and the short time it lasts, as well as from *general observation*, I believe, that it mixes readily with the soil.

† A piece, the size of a hazel nut, lay several hours in water without undergoing the least change.

regains

regains its weight, and falls in a *snow-white mucilage*, which dries to a *nearly white powder*.

Therefore, one hundred grains of this chalk contains,

Ninetyeight grains of a matter dissoluble in the acid of sea salt, and is probably a pure, or nearly a pure, *chalk*; and,

Two grains of indissoluble matter, whose properties I have not, yet, sufficiently ascertained.

This chalk contains the greatest proportion of dissoluble matter,—or, in other words, is the purest calcareous earth, I have yet analyzed. The chalk of Betchworth Hill (a continuation of Box Hill, near Dorking in Surrey), celebrated as a manure (for which purpose it is fetched, twelve or fourteen miles, by the farmers of Suffex), affords a residuum of more than one tenth of its weight: whereas the chalk of Thorp-next-Norwich affords only one fiftieth.

4. THE HARD CHALK OF SWAFFHAM.

In its natural state, it is situated in an extended rock, rising to near the surface, and worked ten or twelve feet deep, as a lime-quarry.

quarry. Its colour nearly white : its *texture* that of a *hard* Kentish chalk ; but mellows, I find, by keeping in a dry situation. When taken from the quarry (in 1782), it was too hard to mark freely ; now (1786), it is sufficiently soft for the purpose of writing.

In water, it remains perfectly concrete.

In the acid of sea salt, it, in a manner wholly, dissolves ; the solution being almost limpid : but, in filtering, a soil of a dark brown colour, and a few (perhaps twenty) particles of sand are left in the filter.

A solution of salt of tartar precipitates the dissolved particles, in a *snow-white powder*.

Therefore, this chalk is, *in its natural state*,
NEARLY A PURE CALCAREOUS EARTH.

II. MOULD.—Besides what come under the idea of marls and clays, a variety of other earths are industriously sought after by the Norfolk husbandmen ; for the purpose of bottoming their farmyards and dunghills ; with a view to catch the drainage of the dung. The dung and the mould are afterwards turned up and mixed together ; by which means the mould becomes saturated with vegetable juices communicated to it by the dung : and it is a common

mon observation, that the mould thus prepared "lies longer in the ground"—is a more permanent manure, than the dung itself.

This is not improbable; for crude unmixed dung, buried in lumps, and dissolved in the soil by heavy rains, is liable, no doubt, to be carried away, in part, below the vegetative stratum; especially of a light soil: therefore, to arrest and *fix* it, before it be carried upon the land, seems to be, in the management of such a soil at least, highly judicious.

This piece of good management is talked about in most countries, and practised perhaps by some few individuals; but in Norfolk, a light land country, it is the universal practice*.

The principal source of this mould—provincially "manner"—is the shovellings of ditches; which, in this country, are found to contain in themselves a singularly fertilizing property. This rich mould is not composed of the sediment of the washings of the adjoining inclosures; many of the ditches, perhaps,

* I mean, to bottom dungheaps with a stratum of mould. It is not equally universal to turn over and mix the dung and mould together; but this is frequently done by good husbandmen. It is not, however, in every case, eligible. A dungheap, formed *in the spring*, for turneps, would, in a *dry* season, be injured by such treatment.

never

never having, from the time of making to the time of scouring, admitted a current of water; but consists altogether of dead weeds, leaves of the hedge, and the mouldering of the bank and the sides of the ditch.

The effect of the air of Norfolk upon the Norfolk soil exposed in this manner is extraordinary: the most barren rusty substratum exposed for a few years in the face of a ditchbank, is changed into a rich black mould, of a fertilizing quality. This change, in a greater or less degree, takes place in every country; but I have not observed it, any where, so obvious as it is in this District. *Perhaps*, the sea air, acting upon a loose porous soil, may assist in producing this change. Be this as it may, it is an interesting fact; by which, perhaps, Norfolk husbandmen, at least, might profit (see MIN. 77. on this subject).

Another source of "manner" is *useless turf*. The backs of ditchbanks—the borders of fences in general—the sides of lanes, and the nooks of yards, &c. &c. which, in other places, are suffered to remain, from generation to generation, the nursery of weeds, are, by the Norfolk farmers, turned up into ridges, to rot the roots, &c. of the grass and weeds, and to receive

ceive the melioration of the air ; which done, it is carted, in due season, to the paryard, or dungheap.

Another specimen of manure much coveted here is "mergin"—that is, the rubbish of old buildings.—Seastone walls afford a great quantity of this valuable article ; which, from its immediate effect, and its duration, taken jointly, is considered, by some, as being superior to marl, mould, or even dung itself ; especially upon scalds, and hot burning soils. It is sometimes mixed with dung ; but more commonly set on alone.

III. LIME is in good repute, though not in general use, as a manure ; husbandmen in Norfolk being, like husbandmen in other places, of different opinions respecting the value of lime. This difference in opinion will ever remain, while general conclusions are drawn from particular incidents. The effect of lime upon different soils is as various as the soils themselves ; and nothing but experiment can determine whether it will, or will not, be beneficial to a given soil.

It is used by many judicious farmers, even after marl, with success. Upon hot burning
soils

foils it is generally found of the greatest efficacy; and is perhaps the most effectual cure of "scalds" which has yet been discovered: from these and other circumstances, lime is here considered as a *cold* manure.

IV. ASHES.—These are not in estimation as a manure in this country: even those of the hearth are in a degree neglected.

The meadows and fens abound with peat-bogs, which in some places would be considered as inestimable sources of manure. The peat of the meadows would no doubt afford an ample supply of ashes; but those of the fens, being wholly composed of the roots, &c. of aquatics, burn down to an inconsiderable quantity of ashes, of a white colour, and of a volatile nature, like those of paper. Even the small quantity they afford is not considered, by men who stand high in their profession, as a valuable manure.

Sodburning is not, I believe, practised in any degree: I never, at least, met with an instance of it; nor, indeed, with any instance in which ashes were intentionally produced solely as a manure; except one, in which anthills were burnt for this purpose (see MIN. 6).

V. DUNG.

V. DUNG.—The *quality* of dung is here attended to with greater precision than in most other Districts.

“Town muck” stands first. Norwich affords a supply to the country round it; while Yarmouth produces, for its neighbourhood, a muck of a singular quality.

Yarmouth is in a manner furrounded by marshes and the sea; straw, of course, becomes there a dear article. This, and the vicinity of the seashore, has established a practice, which I believe has been in use time immemorial, of *littering* stables with sea sand instead of straw. As the bed becomes soiled or wet, fresh sand is scattered on, until the whole is in a degree saturated with dung and urine: the stall is then cleared and a fresh bed of sand laid in. By this means muck of a quality singularly excellent is produced: it is fetched by the farmers of the Fleg Hundreds to a very great distance.

The “muck” of the “paryard,” too, is esteemed of various qualities.—That of the stable, made from horses fed on hay and corn, is reckoned the best; that from *fatting* cattle the next; while that of *lean* cattle, and of *cows* in particular, is considered as of a very inferior quality;

quality ; even though turneps make a part of their food. The dung of such cattle, kept on straw, alone, is esteemed of little or no value. And, what may appear extraordinary to many, the muck from the straw which is trodden, only, is by some thought to be better than that from the straw which is eaten by lean stock.

VI. COMPOST.—This may be said to be the common manure of the District ; for there is very little dung set on without being first mixed, in the yard, or in the field, with mould, marl, or other “manner.” See MOULD.

Sometimes a considerable proportion of “manner” is added to the dung : I have known a compost of one part marl, one part mould, and the third part dung, used in common, by a very industrious judicious farmer, with success.

It seems to be a fact, well established, that although marl, alone, will not answer on land which has been recently marled ; yet, mixed with dung, it produces a beneficial effect.

VII. TEATHE.—This is a provincial term, conveying a compound idea, for which we have no English word. When we make use of the

term *fold*, as applied to the fertilizing effect of sheep pent upon land, we do not mean to convey an idea merely of the fæces they leave behind them, in this case, but also of the urine, the trampling, and perhaps of the perspiration, and the warmth, communicated to the soil by the practice of folding. *Teatbe* in like manner is applied to the fertilizing effect of cattle, upon the land upon which they are foddered with turneps or other food; whether that fertilizing effect be produced by their dung—their urine—their treading—or by their breath—their perspiration—and the warmth of their bodies.

This term is applied likewise to sheep and other stock: nor is it confined to stock shut up within narrow limits, but is extended to pasturing stock; implying, collectively, the returns which they make to the lands they depasture.

The teathe of cattle is, like their dung, estimated according to the quality of the food, and the quality of the cattle which consume it. The teathe of fat heavy bullocks, at head-keep, is esteemed very beneficial to the lands of Norfolk; while that of cows and lean stock is, the “jamming” apart, considered of little value.

VIII.

VIII. SHEEPFOLD.—There are few sheep kept in this District; and the fold is not in use; except by a very few principal farmers; and by some gentlemen who keep large tracts in hand. The value of sheepfold is well understood; but the main object of the East Norfolk husbandry is bullocks; and the farmers, by their practice, seem well aware that sheep among cattle are unprofitable stock.

IX. SOOT is in good repute; and, near the towns, is in use. RAPECAKE is also in good esteem, in some parts of the District; as are MALTCOOMBS, in places where they can be had at a reasonable price.

For the *application*, and the *method of applying* these various manures, see the article MANURE PROCESS.

For the method of *raising farm-yard manure*, see FARM-YARD MANAGEMENT.

For an instance of *burning ant-hills* for manure, see MIN. 6.

For an instance of utility of the *shovelling of a sheepfold* to grassland, see MIN. 10.

For an instance of the use of *sheepfold* to barley, see MIN. 11.

For experiments on *different manures* for wheat, see MIN. 18.

For a calculation on the value of *sheepfold*, see MIN. 18.

For experiments and observations on the action of *lime*, see MIN. 29.

For reflections on *bullock teatbe*, upon the fair-stead of St. Faith's, see MIN. 31.

For a description of the *Fleg clay*, see MIN. 106.

For observations on the effect of *calcareous earths* on stiff land, see MIN. 106.

For a description of the *marl and clay of the coast*, see MIN. 112.

FARMERS.

6.

F A R M E R S.

I DO NOT mean to hold out the farmers of Norfolk as a separate order of men: farmers, in every country, have, in their dress, their manner, their conversation, and their acquirements, a striking resemblance: nevertheless, in every country, I find some distinguishing characteristic.

The farmers of Norfolk are strongly marked by a liberality of thinking, and, in consequence, by an openness in their manner and conversation. This may be accounted for: many of them have been, and some of them still are, rich: this has led them to mix, in a greater or less degree, with what is called the World; of which their leases render them independent. A tenant-at-will, be his riches what they may, is a subaltern in society; in which he dares not to mix, lest his landlord, or his landlord's associates, should be pleased to take offence.

D 3

Thus

Thus the clergy, and those men of small income who fall under the denomination of country 'squires, are in most places looked up to by farmers; while in Norfolk they are considered, by the principal farmers at least, as belonging to the same order of society*.

The

* As an instance of the *complacency* and *good breeding* (I do not mean *complaisance* or *politeness*) of the superior class of Norfolk farmers, I will relate the circumstances of deportment which occurred to myself, at a farm-house, at which I slept accidentally.

Our host having given strict orders, and some personal attention, respecting our horses, the company were led into a spacious kitchen, characterized by cleanliness and a chearful fire. A decent upper-servant presented herself. Supper was ordered, and a bottle of wine, in a neat fashionable decanter, set upon the table. A smart, but not extravagant, supper soon made its appearance. The housekeeper waited in an adjoining room, and a maid-servant at the table, with a degree of propriety and decorum frequently unseen in the houses of those who call themselves gentlemen. A trifling incident proved the good sense, if not the good breeding, of our host and his family. Forgetting that I was at the table of a *Norfolk farmer*, I asked for an article of the side-board which was not at hand. The servant went out of the room as if to fetch it; but instead of returning, the housekeeper came in to make an apology for not happening to have it in the house: she withdrew: the maid-servant returned; while the

The lower class of Norfolk farmers, however, are the same plain men, which farmers in general are, in every other country; living in a great measure with their servants. Another class live in the kitchen with their servants, but eat at a separate table; while the upper classes have their "keeping rooms" and other commodious apartments.

In general they rise early, breakfast early, and dine universally at twelve o'clock, at least the servants. This is well adapted to the Norfolk practice of going what are called two journeys a day, with the plowteams: the men reach home by dinner-time; and having refreshed the conversation went on without any notice being taken, or any observation whatever being made on the awkwardness of the circumstance.

In the morning when I returned from a walk, I found, in a decently, but not extravagantly, furnished parlour, two tables set out; one with tea equipage, the other with napkins, bread and butter, ham, radishes, &c. The housekeeper sat at the former, placed on one side of the room, and made tea; which was brought to us at our table on the other: and this without the least shew of parade or formality. In short, the whole treatment had so much the air of that free-and-easy reception which I had formerly experienced on the estate of a West-India Planter, that it was with some difficulty I could believe myself in the house of an English farmer.

themselves and their horses, are ready to start again at one to two o'clock for the afternoon journey.

For causes of their present decline with respect to riches, see MIN. 58,

7.

W O R K M E N.

WORKMEN, here, as in other places, are divisible into YEARLY SERVANTS and DAY-LABOURERS.

At the public hiring of YEARLY SERVANTS, an excellent custom subsists in this District: The High-Constable of the Hundred in which a statute is held, holds, at the same time and place, what is called a "petty sessions;" at which the hiring and its attendant circumstances are, or may be, registered; which register becomes, in cases of dispute, either between master and servant, or between parish and parish, a useful record.

In

In respect to DAYLABOURERS, two remarkable circumstances are united; namely, hard work and low wages! A Norfolk farm labourer will do as much work for one shilling, as some two men, in many other places, will do for eighteenpence each. There is an honesty, I had almost said an honour, about them, when working by the day, which I have not been able to discover in the daylabourers of any other country.

For an evidence corroborating these observations, see MIN. 98.

For reasons accounting for their activity, see MIN. 100.

For an instance of still greater exertion, see MIN. 106.

H O R S E S.

8.

H O R S E S.

HORSES are the only beasts of labour made use of in the Norfolk husbandry : there is not, perhaps, one OX worked in the county.

The farm-horses of Norfolk were, formerly, a small brown-muzzled breed ; light-boned ; but stood hard work, and hard keep, in a remarkable manner ; and two of them were found quite equal to the Norfolk plow in the Norfolk soil.

Of late, stallions, of the heavier black breeds of Lincolnshire, Leicestershire, &c. have been fashionable ; and at present (perhaps unfortunately for the country) the true Norfolk breed is almost entirely worn out.

I have heard sensible old men regret this ; and complain heavily against the present breed : they eat up too much of their corn, and are not so active as their favorite " old sort."

The present breed, however, are by no means heavy : on the contrary, being yet as a mongrel

mongrel kind between the two breeds, they are, compared with the elephants of Lincolnshire, a light, punch, active, little horse.

The singular breed of Suffolk is, at present, the fashionable *cross*; and, to my mind, a very judicious one: for, although this strange *variety* of the equestrian species—or, to speak from appearances, this half-horse half-hog race of animals—are not so handsome, in harness, as the present beautiful breed of Leicestershire; they appear to me, from a knowledge of both kinds, to be better adapted to the Norfolk husbandry. Their principal fault is a flatness of rib: if this could be improved, they would, in my opinion, be the first breed of draught-horses in the kingdom.

It is, however, the lighter, more active part of them, which is best adapted to the Norfolk husbandry. Had the original Norfolk breed been crossed with these, instead of the slugs of the Fens, the produce could not have failed of being excellent.

Five horses are here called “a teamer,” and are usually placed under the care of one “teamerman;” who, in more leisure-times, plows with two of them in the morning, and
with

with other two in the afternoon ; but, in general, a labourer, or a boy, works one pair of them while the teamerman works the other pair, two journies a day ; having always, in this case, one horse at rest.

But in feedtime, more particularly in "barley feed," the fifth horse goes to harrow ; every horse upon the farm going to work at six or seven in the morning, and stays till twelve : goes out again at one or two, and remains at work till six or seven.

In a waggon upon the road, five horses are universally in use.

Whether upon the road or on the farm, the common practice is for the horses to trot with empty carriages.

Formerly, this admirable custom was carried too far : instead of trotting for dispatch, races were run, at full speed, upon the road. The lead was the goal contended for : a forchorse which would, at a word or a signal, break out at full speed, was, by the young men who took delight in the diversion of "roading," considered as invaluable. Many waggons, and some necks, having been broken by this dangerous amusement, it is, at present, a good deal laid aside ; though not yet entirely left off. I have myself

myself seen a race of this kind : a following team broke out, upon a common, and, unmindful of the ruts, hollow-ways, and roughnesses, contended for the lead ; while the leading team as eagerly strove to keep it ; both of them going at as full a gallop as horses in harness could go, for a considerable distance ; the drivers standing upright in their respective waggon. The close of the race was the most dangerous part of it ; for so soon as the forchorse of the team which broke out, found that he had gained the lead, he rushed eagerly into the road ; which, in that place, happening to be hollow, it appeared to me miraculous that no mischief was done. Savage, however, as this custom may seem, the present spirit of activity may be, in some measure, indebted to it ; and whenever it is wholly laid aside, I hope it will be from motives of prudence, rather than from a want of spirit and inclination to continue it.

THE KEEP OF HORSES in Norfolk, notwithstanding the work they go through, is less expensive than that of other places, where large unwieldy horses seem to be kept for state, rather than for labour. This, though prevalent in many well cultivated districts, is an evident absurdity.

absurdity. There may be cases, in which heavy loads are to be drawn short distances, and where the number of horses is limited, as in London; in which cases, heavy powerful horses may be eligible; but, from the observations I have been able to make, a compact horse is much fitter for the varied employments upon a farm; and, with respect to keep, a main consideration in the choice of a farm horse, the advantage is greatly in favor of small horses. The present breed in Norfolk, still retaining a considerable portion of the original blood, is kept at half the expence at which many farm horses, in different parts of the kingdom, are supported.

In the leisure months of winter, barley straw is, in general, their only rack meat; and thro' winter and spring, they are suppered up with it; except, perhaps, in the hurry of barley seedtime; against which a reserve of clover hay is made; provided the teamerman does not make away with it before that time. A Norfolk farmer has a similar difficulty in preventing his men from stealing hay, as those of other countries have to keep them from pilfering more than their allowance of corn.

I met with one instance, in which a judicious regulation was made, with respect to horse hay.

At

At Michaelmas, the master sets apart what he considers as a sufficient quantity to last to the close of barley seedtime. This allowance he consigns wholly to the care of his men ; who never fail to husband it in such a manner as to have the necessary reserve at barley seed ; whereas before he fell upon this regulation, his horses were either worked down to skeletons, or he was obliged to buy hay for them at that season.

With respect to corn, a bushel each horse, a week, is, in the busiest season, considered as an ample allowance ; in more leisure times a much less quantity suffices.

Oats are the usual horsecorn ; but barley, when cheap or unsaleable, is sometimes given to horses. In this case, it is generally "*malted*;" that is, steeped, and afterwards spread abroad, for a few days, until it begin to vegetate ; and, in this crisis, is given to the horses. It is thought to be less heating in this state, than it is when given to the horses in its natural state.

Chaff is universally mixed with horsecorn : the great quantities of corn grown in this country afford, in general, a sufficiency of *natural* chaff ; so that *cut chaff* is not much in use :
the

the chaff, or rather the awns, of barley, which, in some places, are thrown as useless to the dunghill, are here in good esteem as horse provender. Oat chaff is deservedly considered as being of a much inferior quality.

The summer keep of horses, is, almost wholly, clover :—some few tares are grown, but the quantity is inconsiderable.

Soiling horses, in the stable, is not here a practice ; except for baiting in the daytime ; the horses being universally kept out at night ; and, generally, in clover lays.

A singular expedient, to prevent their breaking pasture, is here practised :—Horses inclined to this vice are chained, two-and-two, by the fore feet ; one end of a chain, about a yard long, being fastened with a shackle to the near foot of one horse, and the other end to the off foot of the other. This, however, though an excellent way of preventing their rambling, is a dangerous practice : accidents frequently happen. I knew an instance of two horses, coupled in this manner, falling into a marl pit twenty feet deep ; and though one of them miraculously escaped, in a great measure unhurt, the other was mangled in a manner equally singular, and,

and died on the spot. Accidents apart, the practice is a good one : horses accustomed to be coupled in this manner, become, in a striking manner, tractable and civil to each other ; so that their feeding and sleeping is not so much interrupted, as in theory might be conceived.

Another practice, singular I believe to Norfolk, is that of " roping " horses, not only in common fields, but in inclosures : thus, instead of turning the horses loose into a piece of clover, the practice is to tedder them upon it ; beginning on one side, and clearing the herbage as they go. This is a middle way between soiling and pasturing : it saves the expence of mowing, and carrying to the stable ; but does not eat up the herbage so clean as soiling does : on the other hand, it is more saving of herbage than pasturing is ; but there is not only trouble and expence ; but a degree of risk, in roping.

9.

I M P L E M E N T S.

I. THE WAGGONS of Norfolk are of the middle size and middle height: higher than those of Gloucestershire; but lower than those of the midland counties. They are very numerous: upon a middlesized farm, three or four are usually kept; carts being seldom used here (notwithstanding the levelness of the country) in getting in harvest. However, to render carts useful in harvest—more especially if waggons are wanted—a singular expedient is here put in practice. With a common dung cart and a pair of old waggon shafts and fore wheels, a carriage is formed; which, partaking both of a cart and a waggon, is called a

II. 'MAPHRODITE. The points of the shafts rest on the bolster of the fore wheels, to which they are fastened. A copse, or foreladder, similar to that which is sometimes fixed upon a cart shafts, but longer, is also supported by
the

the bolster, projecting over the horse in front; in the manner of the foreladder of a waggon; the length and the breadth of the top of the "maphrodite" being the same, or nearly the same, as those of a waggon. In a hilly country, where carts are in a manner useless in harvest, these CART-WAGGONS would be found extremely convenient.

III. THE CARTS of Norfolk have a singularity pertaining to them. The shafts, instead of being fixed hinge-wise to the axle; or to the bottom of the cart, are a continuation of the side-pieces of the bottom itself: of course, the Norfolk carts do not *tilt* in the manner in which carts in general do.

In setting on manure, a long bellyband is made use of; so that the shafts rise with the fore part of the cart; the shaft horse being the only stay to its tilting up entirely: Nor is this an uncommon circumstance; the shaft horse, in this case, remaining upon his hind legs until he be drawn down again by the fore horses. This, to common observation, is an aukward and a *barbarous* custom: I have not, however, been able to hear of a shaft

E 2

horse

horse receiving any great injury from this practice*.

Marling, it is highly probable, brought it into use: the wear-and-tear of carts in this rugged operation is endless; the simplest, strongest, and least expensive cart has, of course, been, for ages, the study of Norfolk husbandmen; and it is probable that a more simple, a stronger, or a less expensive cart cannot be devised than that described above; which is in common use in this District.

Carts of the common construction, of which there are some few used here, for particular purposes, are called **TUMBRELS**.

IV. **THE NORFOLK PLOW** is still more singular in its construction than the Norfolk cart; and, what is equally singular, it is, in a manner wholly, confined to the county of Norfolk. The first I saw was at Thetford, and I do not recollect to have seen one plow of any other construction while I remained in the country, nor one of that construction since I left it.

It is true, this implement has been distri-

* A broad soft bellyband, of leather or hemp, ought however to be used on this occasion. The sharp iron chains which are frequently made use of, are painful to the eye at least.

buted,

buted, at different times, in almost every District in the kingdom; but it has not, I believe, been *adopted* in any one of them;—except perhaps in Nottingham Forest.

There is no doubt of the excellency of the Norfolk plow in cultivating the Norfolk soil; or any soil which is similar to it; namely, a shallow, sandy loam, free from obstructions. But the width, and general shape, of the share render it utterly incapable of being worked in a strong soil, in which stones or other obstructions abound: and the usual manner of setting the hind part of the “plat” or mouldboard, equally prevents it from turning, properly, a deep square furrow.

The peculiarities of its construction are principally these:—the wheels are taller, and their tackle more complex, than those of other small plows; the form of the wheels themselves being, however, beautifully simple. The share is unusually broad, flat, and blunt at the point. The *mouldboard* is not of wood, but of iron, sometimes wrought sometimes cast*; being a

* *Cast-iron shares* have lately been invented, and a patent procured for them, by a person of Norwich. For the Norfolk plow, in the Norfolk soil, they appear, from

separate strong *plate*, twisted into a form resembling the mouldboard of the modern little plow of Yorkshire and other Districts; which, it is probable, has been copied from the Norfolk "plat." Another thing remarkable in the Norfolk plow, though not singular to it, is its having only one handle.

There are readers, perhaps, who will expect that a drawing and dimensions of the Norfolk plow, and, perhaps, of the other implements peculiar to the country, ought to have been given in this work; in order that copies of them might have been made in other Districts. The idea, in theory, is plausible; and I have myself, as writers in general on the subject of husbandry have, spent much time in the pursuit of it. Experience, however, has convinced me that, with respect to myself at least, it has been time ill-spent: I have found even patterns insufficient guides to workmen: so much depends on minutiae in the construc-

the specimens I have seen of them, to be a valuable invention. If they can be made *firm* enough to stand in a stony soil, and hard enough to retain a sufficient edge in a gravel, they must prove, to agriculture in general, a most valuable acquisition. *Jan. 1787.*

tion

tion of the more complex implements of agriculture. Nay, the very implement which gives rise to these observations, constructed in Norfolk in the most complete manner, and furnished with every necessary appendage, has lain useless upon a soil it suited, until a Norfolk plowman was sent to hold it! How unreasonable, then, to expect utility from a drawing of it!

These circumstances are not singular to the Norfolk plow; I have known them attend other implements transferred from one part of the island to another: and I will beg leave to observe, here, in general terms, that whoever wishes to introduce an implement which is in use in some distant District, would do well to have it not only constructed, but set to work, in the country where it is in use; and I will venture to add, that success cannot be insured unless a person accustomed to the working of it accompanies it, and sets it to work in the District into which it is intended to be introduced.

This is, no doubt, an expensive way of proceeding; but it is a certain one: while every other expedient is throwing away, or at least

risking, a certain expence, without any other certainty whatever.

Suppose the Norfolk plow, for instance, to be transported one hundred miles,—and the charges of a man, a horse, and a light cart, to be from sixpence to a shilling a mile,—the expence,—to a large occupier, in a country where a sandy soil, free from obstructions, and with an absorbent subsoil, is worked by three horses at length with a driver,—would not be an object*. Plowing with two horses without a driver, instead of three with a driver, is, perhaps, the greatest saving which can be introduced upon a farm: and, for the soil abovementioned, it would be difficult to construct a better plow than that which is now, and has been time immemorial, in common use in Norfolk.

If I were to hazard an improvement of the Norfolk plow, it would be the addition of another handle; and to change the practice of driving with a whip (to my mind a very auk-

* In these days of spirited improvements in husbandry, when fifty to a hundred guineas are given for one year's ride of a ram, five pounds for the introduction of a useful implement cannot be deemed extravagant.

ward business) to that of driving with whipreins, in the Yorkshire manner; a practice, the excellency of which I have myself experienced in different Districts.

The Norfolk rein is one continued "line" passing from the bridle of one horse, through a staple fixed on the underside of the handle of the plow, to the bit of the other horse; the plowman holding his plow with the left hand, and carrying a short whip in his right. In difficult work the right hand, whip-and-all, is applied to the handle of the plow; the plowman walking, in this case, in a posture and with a gait, which, to a stranger, appears extremely awkward; and nothing, but the want of another handle, could render it sufferable to the plowman himself.

The Norfolk line has, in setting out a fresh furrow, a seeming advantage over whipreins. In this difficult work, at which the Norfolk plowmen are singularly expert, the loose part of the line is gathered up in the right hand; so that the plowman has, with the smallest motion of his hand, one way or other, a perfect command of both horses; but if, in this operation, he tie the two ends of the whipreins together,

together, letting the left-hand one ride beneath a pin, or in a hook, placed under the handle for that purpose, the advantage of the Norfolk line is thereby fully obtained.

The Norfolk *barrow* is adapted to the soil—light and short-tined.—Each harrow has its horse:—that is, each horse draws a separate harrow;—three or four harrows being sometimes drawn abreast, without being, as in other places, intimately connected together.

V. THE ROLLER of this country is very simple and *very light*. This, considering the nature of the soil, is extraordinary.

The farm-rollers, in general, have no shafts—perhaps only two loose pieces of wood, about two feet and a half long, with a hole near one end, to receive the gudgeon of the roller, and a hook or eye at the other, to hook the trace to: sometimes two rails are fixed in between the two end-pieces, framewise, with two hooks or staples in the front rail to hook the horse to,

In evidence of the lightness of the Norfolk roller, I do not recollect to have seen more than one horse used in a common farm roller; and this one horse, besides drawing the implement,

ment, has usually carried the driver; it being the singular custom of this country to "ride at roll:" an employment, however, which generally falls to the share of a young boy, or an old man.

Notwithstanding the high degree of cultivation in which the lands of Norfolk are undoubtedly kept, no country perhaps has less variety of implements.

There is not perhaps a *drill*, a *borseboe*, or scarcely a *borserake*, in East Norfolk. I saw one *spikey roller* for the purpose of indenting the surface of a clover lay once plowed for wheat (see the article WHEAT): but this, I believe, was never in common use.

There is, however, one implement, received into the Norfolk husbandry, which is probably a Norfolk invention, and peculiar to the county: I have not met with it, at least, out of this country:—I mean the

VI. SNOW-SLEDGE.—This beautifully simple implement is used for uncovering turneps buried under a deep snow. It is simply three deal or other boards, from one to two inches thick, ten or twelve inches deep, and seven to nine feet long, set upon their edges in the form
of

of an equilateral triangle, and strongly united, with nails or straps of iron, at the angles; at one of which is fastened, by means of a double strap, a hook or an eye, to hang the horses to. This being drawn over a piece of turneps covered with snow, forces up the snow into a ridge on each side, while between the ridges a stripe of turneps is left bare; without having received any material injury from the operation.

VII. TIMBER-CARRIAGES. Although timber-carriages may not, in strictness, be said to belong to husbandry, a description of them does not fall inaptly under the present head. They are in Norfolk, as in most other places, of two kinds: the four-wheeled carriage—provincially, “a drug;”—and the pair of wheels—provincially, “a gill.”—The last is most in use; and of this only I mean to speak;—not so much of its construction, as of the manner of using it.

The construction of the Norfolk gill is similar to that of the timber-wheels of most other countries: namely, a pair of tall wheels, with a crooked axle-tree, surmounted by a block; to which axle is fixed a pair of shafts, or sometimes a single pole, only.

But

But the method of using them, here, is different from that which I have observed in other places; where the only use they are put to is to raise the butt end of a large timber to be drawn a short distance; the top end being suffered to drag behind upon the ground, to the injury of the turf, or the road; it is drawn upon.

In Norfolk, a large stick of timber, or perhaps three or four smaller ones, are entirely slung to the axle; so that, in drawing, no part of them whatever touches the ground; the top end being generally drawn foremost, and the end toward the horses always the heaviest.

The method of taking up a piece of timber is this: the horses being taken off, the wheels are run, by hand, astride the timber to be slung, until the axle is judged to be a few inches behind the balance-point: or, which is better, a chain is first put round the timber, and the wheels run up to it. It is difficult to ascertain the exact place of fixing the chain, by the eye; nevertheless, a person accustomed to sling timber in this manner, will come very near the truth. The chain hooked, and the axle brought into its proper situation, the shafts, or pole, is thrown back in the usual manner; the chain
carried

carried over the block; brought round the pole; its end made fast; and the shafts or pole drawn down again by the horses; by which means the timber is lifted from the ground; and suspended to the axle.

If the required point of balance be not hit upon the first trial, the shafts are suffered to rise again, the chain is unhooked, and shifted to its proper situation: the shafts being again pulled down, are bound, by an iron trace or snail chain, close down to the timber; while another small chain or trace is fastened round the foremost end to hook the horses to; *the team drawing by the timber, not by the pole or shafts.*

The utility of having a superbalance of weight forward is twofold:—if the piece were slung in exact equilibrium, it would, upon the road, be in perpetual vibration; thereby rendering the pull unsteady, and extremely inconvenient to the horses; whereas by throwing the balance forward, the traces are constantly kept down in their proper place, and the pull becomes uniform: if, however, too much weight were to be thrown forward, the draught of the horses would not raise the point from the ground; the friction would, of course, increase the draught, and the road be at the same time hurt.

hurt. It therefore follows, that the proper weight to be thrown forward is enough to prevent a vibration, but not so much as to prevent the point from being raised from the road by the draught of the horses upon level ground.

The other advantage by a superbalance forward, is gained in going down a hill; in which case, the draught not being wanted, the point, of course, falls to the ground, and serves as a pall to regulate the motion of the carriage; if the superbalance alone be not sufficient to check the too great rapidity of the motion, the driver adds his own weight. Likewise, if, in ascending a hill, the balance be lost; he, in like manner, seats himself upon the fore part of the load, thereby keeping it down to its proper level.

This method of conveying timber may, it is possible, be in use in other Districts; but I have not seen it practised any where except in Norfolk. I know it to be an excellent, but not a common practice: I have, therefore, been induced to give this description of it.

T A X E S.

10.

T A X E S.

UNDER this head, I shall class
Landtax,
Tithe,
Poor's Rates.

I. THE LANDTAX, in this District, runs at about eighteen pence to two shillings upon the present rents.

II. TITHE. The District is mostly titheable; but tithe is here seldom taken in kind. The rents paid, in three principal parishes in this neighbourhood, are:

North Walsbam, about two shillings and nine pence, rectorial; and one shilling, vicarial; an acre, all round.

South-Reps, about three shillings each acre of arable land, for rectorial and vicarial. This parish is allowed to be reasonably rented. The rector resides in the parish.

North-Reps, for great and small, three shillings an acre all round; though much bad land in the parish.

N. B.

N. B. In *Rowton*, a small parish of poor land, about two shillings for corn and fallow, two-and-sixpence for clover and turneps, and one penny halfpenny for each cow and calf, as a modus for meadow.

III. POOR'S RATE. In the year 1782, and for some years preceding, the poor's rate of *North Walsham* was about five shillings and sixpence upon the pound, rackrent.

South-Reps, three shillings and sixpence upon the rackrent.

North-Reps, four shillings upon the same.

Rowton, three shillings upon the same.

Erpingham, (a considerable parish) three-and-sixpence upon the same.

It must be observed, however, that the period under notice being in the war, the wives and families of militiamen were a principal cause of raising the poor's rates to the above high pitch.

II.

GENERAL MANAGEMENT

O F

E S T A T E S.

THE MANAGEMENT of landed estates, in this District, is conducted on a plan, which is not generally known, and is seldom if ever executed, in other parts of the kingdom ; where receiving, twice a year, by a plain rentroll, is frequently the sum of management.

Formerly, it was the invariable practice of the District for landlords not only to build, but to repair ; also to furnish gates ready-made ; plant and cut hedges ; and even repair the ditches of their tenants ; reserving to themselves the hedgewood ; and, in effect, a degree of possession of the buildings and fences ; the tenant having, of course, only a partial possession of the farm he rented. And the same system of management, with some few alterations, prevails to the present time.

This

This renders the immediate superintendency of a large estate in Norfolk a busy and unbroken scene of employment. The summer months are not more actively employed in attending to REPAIRS, than the winter months are in the management of FENCES.

But these and other articles I shall consider separately; comprizing under the present head such general matter, only, as necessarily occurs upon every leased estate.

I. TENANCY. *Tenants-at-will* are thinly scattered. LEASES, either for a *term*, or from *year-to-year*, are universal. *Leases for life* are rarely heard of in this District.

II. TERM. The term, formerly, was twenty-one years; but the advance of produce which took place some years ago, producing, as it ever will do, an advance of rent, the tenant who had then just entered on a lease of twenty-one years, became, for a series of years, under-rented: the consequence is, gentlemen, in general, refuse to grant leases of longer term than fourteen years, and many curtailed them to seven years; a term, in my opinion, much too short.

Articles from year-to-year are very prevalent, especially among smaller tenants; and, in many respects, they are preferable to a short term; which is a tie to both parties, without being, in general, advantageous to either.

Marling is the principal improvement of a Norfolk farm; but who would marl on a seven years lease? Where much marling is to be done, fourteen years is too short a term;—and though landlords may once have felt the inconveniencies of twenty-one years leases, it is probable that tenants, who have of late years taken leases of that length, will, before their expiration, experience, in their turn, feelings of a similar nature.

III. RENT. The medial rent of the District may be laid at twelve shillings an acre: toward the North coast the soil is lighter, and less productive, than it is in more central parts of the District; but on the Eastern coast and in the southern Hundreds it is much more fertile, letting from eighteen to twenty shillings an acre.

In general, the District is very highly rented: there are lands in the kingdom,—I will venture to say within twenty miles of the metropolis,—which let at eight shillings an acre, yet are, in their nature, equally fertile as those of Norfolk,
which

which let currently for ten to twelve shillings. Nothing can account for this but the superiority of the Norfolk husbandry; and the quick dispatch which prevails in every department of the Norfolk system of management.

IV. COVENANTS. Covenants of leases are, in Norfolk, as in other Districts, various as leases themselves: the particular circumstances of an estate, and the special matter of agreement between landlord and tenant, will ever produce this variety, in a greater or less degree: nevertheless, every country has its natural covenants, and its prevailing fashions, as to restrictions and indulgences.

These fashions, however, alter; and an improvement has recently taken place, upon some of the first estates in Norfolk, with respect to the REPAIRS of buildings and fences; the tenant now covenanting to pay half the workmen's wages. This has two valuable effects:—the tenant thereby pays a stricter attention to the workmen employed; and becomes more careful of those things which, heretofore, he had no interest in preserving.

V. No department of the management of an estate gives more uneasiness to both landlord

and tenant than do REMOVALS, or exchanges of tenants ; and every covenant which facilitates this unpleasant business is valuable. The shifting of tenants is no where conducted with greater ease than in Norfolk ; where, it is probable, leases have been long in use ; and where removals from farm to farm are become familiar.

VI. THE TIME OF RECEIVING RENTS, in Norfolk, is, pretty generally, Christmas and Midsummer ; landlords giving their tenants three months credit. Christmas, however, is of all others the worst time of the year for this purpose : many serious evils arise from it (see MIN. 47, on this subject). The first of March and the first of June appear to be the most eligible rentdays in Norfolk.

VII. The following HEADS OF A LEASE will place the general management of a Norfolk estate in a clear and comprehensive point of view. They are not, either in form or substance, copied, precisely, from the lease in use upon any particular estate ; but exhibit, I believe, a pretty faithful outline of the modern Norfolk lease.

LANDLORD

LANDLORD AGREES, 1. to let, certain specified premises, for a term, and at a rent, previously agreed upon.

2. ALSO to put the buildings, gates, and fences in tenantable repair.

3. ALSO to furnish rough materials, and pay half the workmen's wages in keeping them in repair, during the term of the demise; wilful or negligent damage excepted.

4. ALSO to furnish the premises with such ladders as may be wanted in doing repairs, or in preserving the buildings, in case of high wind, fire in chimneys, &c. (an excellent clause).

5. ALSO to furnish rough materials for keeping the gates, gateposts, styles, &c. &c. in repair; or to furnish the materials ready cut out; tenant paying the usual price of labour for cutting out.

6. ALSO to pay half the expence of such shores and ditches as he, or his agent, shall direct to be made or renewed.

LANDLORD RESERVES, 1. all minerals, fossils, marls, clays; with liberty to work mines, quarries and pits, and to burn lime and bricks upon the premises; likewise to carry away

such minerals, &c. &c.; excepting such marl, or clay, as may be wanted for the improvement of the farm.

2. ALSO, all timber trees, and other trees and woods, underwood *and* *bedgewood*; with liberty to fell, convert, char, and carry off such timber or other woods; excepting such thorns and bushes as shall be set out by landlord, for making and repairing fences; provided the thorns, &c. so set out be cut in the winter months; excepting, however, out of this proviso, such few as may be wanted in the course of the summer months, for stopping accidental gaps.

3. ALSO, full liberty of planting timber-trees in hedges, or on hedgebanks; with a power to take to himself, after twelve months notice given, some certain number of acres of land for the purpose of raising timber trees, other trees, or underwood; allowing the tenant such yearly rent, &c. for the land so taken, as two arbitrators shall fix.

4. ALSO, a power of altering roads, AND of inclosing commons, or waste lands, without the controul of the tenant; to which intent, all commonright is usually reserved,

in form, though seldom *in effect*, to the landlord,

5. ALSO, the customary liberty to view buildings, do repairs, and, consequently, to bring and lay materials.

6. LASTLY, the right of sporting and destroying vermin.

TENANT AGREES, 1. to pay the stipulated rent half-yearly ; and within thirty days after it be due ; under forfeiture of the lease ; and, further, to pay the last halfyear's rent two months, or a longer time, before the expiration of the term.

2. ALSO, to do all carriage for repairs (within a specified distance) ; AND to find all iron-work and nails ; AND to furnish wheat-straw for thatching ; AND to pay half the workmen's wages, and find them with small beer.

3. ALSO, to do all ditching, &c. set out by landlord (provided the quantity set out do not exceed one tenth of the whole) ; AND to pay half the workmen's wages, and find them in small beer ; AND to defend with hurdles, or otherwise, all such young hedges as shall be exposed, in spring and summer, to the browzings of pasturing stock.

4. ALSO,

4. ALSO, to make, or pay for making, such gates, &c. as shall be wanted upon the farm during the term of the demise; and to hew, or to pay for hewing, all necessary gate-posts; and to put down and hang, in a workman-like manner, such gates and gate-posts, at his own sole expence; as well as keep all the old gates on the premises in tenantable repair.

5. ALSO, not to assign over, nor, in any other way, part with possession of his farm; but to make it his constant residence during the term of the lease. NOR to take any other farm; nor to purchase any lands adjoining, or intermixed with it; without the licence and consent of landlord; under forfeiture of the lease.

6. ALSO, not to break up any meadow, pasture, or furze ground, under the penalty of ten pounds an acre a year. NOR to cut "flags," that is, turves, under fifty shillings a hundred.

7. ALSO, not to lop or top any timber-tree, under the penalty of twenty pounds: nor other tree, under ten pounds: nor cut under-wood or hedgewood (except as before excepted)
under

under ten pounds a load. But, on the contrary, to preserve them from damage as much as may be ; and, if damaged by others, to give every information in his power, under the penalty of twenty pounds.

8. ALSO, not to take more than two crops of corn without a whole year's fallow,—a crop of turneps twice hoed,—or a two years lay,—intervening, under the penalty of —.

9. ALSO, to consume on the premises all hay, straw, and other stover ; and not to carry off, or suffer to be carried off, any part, under pretence of being tithe compounded for, or under any other pretence whatever, under the penalty of ten pounds, for every load carried off.

10. NOR to carry off, nor suffer to be carried off, any dung, muck, &c. under five pounds a load.

11. NOR to impair the foundations of the buildings round the dungyard, by scooping out the bottom of the yard too near the buildings ; but to keep up a pathway three feet wide between the dungpit and the foundations (an excellent clause),

12. ALSO,

12. ALSO, not to stock any part of the premises with rabbits; but to endeavour, as much as may be, to destroy them.

13. ALSO, *during the last two years of the lease*, not to take in any agistment stock.

14. ALSO, *in the last year*, not to suffer swine to go loose without being yoked and rung.

15. ALSO, *in the last year*, to permit landlord, or incoming tenant, to sow grafs seeds over the summer corn; AND to harrow them in, gratis; AND, not to feed off the young grafses after harvest.

16. ALSO, *in the last year*, not to sow less than — acres of fallow, of, at least, three plowings and suitable harrowings, with two pints an acre of good, marketable, white-loaf turnep-seed; AND, in due time, to give the plants two hoings (*or, if the crop miss, to give the fallow two extra plowings*) in a husbandlike manner; AND, at the expiration of the term, to leave such turneps growing on the premises; free from wilful or neglectful injury; under the penalty of — pounds an acre.

17. ALSO,

17. ALSO, to permit landlord or incoming tenant to begin, on or after the first day of July, *in the last year*, to break up the two years lay (hereafter agreed to be left) for wheat fallow, or any other purpose; AND to harrow, stir, and work the said fallows; and to carry and spread dung or other manure thereon, without molestation.

18. ALSO, *in the last year*, to permit landlord, or incoming tenant, to lay up hay, or other fodder, on the premises, and to protect it thereon.

19. ALSO, to lay up and leave upon the premises, *at the expiration of the lease*, all the hay of the last year (or of any preceding year, if unconsumed at the expiration of the term) except —— loads, which tenant is allowed to carry off.

20. ALSO, to lay up, in the usual barns and rick yards, the last year's crops of corn; together with the tithe, if compounded for; AND to thrash them out, *in proper season*; and in such manner that the straw, chaff, and colder shall be injured as little as may be.

21. ALSO, *at the expiration of the term*, to leave no less than —— acres of olland, of

two years laying (including that which may have been broken up by landlord or incoming tenant) and which shall have been laid down in a husbandlike manner, after turneps or a summer fallow, and with not less than twelve pounds of clover, and half a peck of ray-grass, feeds an acre—under the penalty of — pound an acre. ALSO not less than — acres of olland, of one year's laying, to be laid down as above specified, under the penalty of — pound an acre.

22. ALSO, *at the expiration of the term*, to leave all the yard manure, produced in the last year of the lease, piled up in a husbandlike manner, on the premises; excepting such part of it as may have been used for the turnep crop; and excepting such other part as may have been used by landlord, or incoming tenant, for wheat.

23. ALSO, *at the expiration of the term*, to leave the builklings, ladders, gates, fences, water-courses, &c. &c. in good and tenantable repair; landlord in this, as in every other case, performing his part as above agreed to*.

* ALSO, upon such parts of an estate as lie near the residence of the owner, it is customary for the tenant to agree

TENANT TO BE ALLOWED, 1. the full value of all the hay left upon the premises, of the last year's growth, or of the growth of any preceding year; provided the quantity of old hay do not exceed — loads.

2. ALSO, the full value of the turneps left on the premises; or the accustomed price for the plowings, harrowings, and manuring; at his own option.

3. ALSO, the feedage of the lays broken up, by the landlord or the incoming tenant, from the time of their being broken up until the expiration of the term the ensuing Michaelmas; ALSO, for all damage arising in carrying on manure or otherwise.

4. ALSO, the feedage of the young clovers, from harvest to Michaelmas.

5. ALSO, the use of the barns and rick-yards for summer corn until Mayday; and for winter corn until the first of July next ensuing.

agree to furnish annually, a certain number of loads of straw, according to the size of his farm; ALSO to do the carriage of a certain number of loads of coals; ALSO to keep dogs, warn off sportsmen, and suffer them to be prosecuted in his name: remnants, these, of the antient base tenures of soccage and villanage.

6. ALSO

6. ALSO, (by way of a consideration for the stover) the customary price for thrashing and dressing the corn; the landlord, or incoming tenant, ALSO carrying the same to market, gratis: provided the distance required to be carried does not exceed —— miles, and the quantity required to be carried, at one journey, be not less than —— coombs.

All the above ALLOWANCES to be referred to two arbitrators; one to be chosen by each party, in Michaelmas week; and the amount awarded to be immediately paid down, by the landlord, or the incoming tenant.

For the method of conducting *exchanges of intermixed lands*, in Norfolk, see MIN. 4.

For the *time of receiving rents*, see MIN. 47.

For the operation of a *rise of rent*, see MIN. 58.

For an instance of IMPROVEMENT by *rabbit-warren*, see MIN. 79.

For instance of IMPROVEMENT by *building-leases*, see MIN. 106.

For an IMPROVEMENT by *inclosure*, see MIN. 137.

Note. Besides the above particulars, respecting the general management of estates, I find myself possessed of a variety of others; on the more immediate connection between landlord and tenant; but they cannot, with strict propriety, be published in the present volumes.

I 2.

BUILDINGS and REPAIRS.

THE FARMERIES of Norfolk are, in general, large and convenient. Many of them have been the residencies of that yeomanry, which, as has been already observed, is now nearly extinct.

I. THE DWELLING HOUSE, in general, is commodious: kitchen and “backhouse;” parlour; and, on the larger farms, a “keeping room,” in which the master and his family sit apart from the servants.

II. THE BARNs of Norfolk are superior to those of every other county; numerous and spacious. No farm has less than three thrashing floors; some farms five or six, and these of unusual dimensions. Twentyfour feet by eighteen is considered as a well sized floor; twenty by fifteen, a small one. Indeed, a floor of less dimensions is ill adapted to the Norfolk method of cleaning corn; which is universally effected by casting it with shovels from one end

of the floor to the other. To obtain this necessary length of floor, a porch on one or both sides of the barn, is almost universal. A leanto porch, with double doors to let out an empty waggon, and with a range of leanto sheds or hovels on either side, continuing the roof of the barn, without a break to the eaves of the porch and sheds, is at present, deservedly, in good estimation.

III. BARN FLOORS are of plank, "lumps" (a kind of bricks), or clay: the last are most prevalent; and although they be considered as inferior to the first, they are in better esteem in Norfolk than in most other places; for a Norfolk farmer is aware that what he loses by the *handle* of his corn, thrashed on a clay floor, he regains by *measure*; for the same dust which gives the roughness of handle in the sample, prevents the corn, thus soiled by the clay's beating up, from settling so close in the bushel, as that which has been thrashed on a clean wooden floor.

IV. THE STABLES are no way peculiar; except in their having, in general, "a hayhouse" adjoining to them, instead of a haychamber
over

over them ; a custom which is at once wasteful both of hay and houseroom : at present, however, it is the practice to raise stables high enough to admit of hay chambers over them ; with floors, not of boards, but of clay ; which is cheaper, and, in other respects, much preferable to board floors,

V. COW HOUSES are unknown in a Norfolk farmery : a small “ suckling place” and a “ calves’ house” are the only buildings appropriated to cattle : except

VI. BULLOCK SHEDS, which are sometimes (but not generally) erected ; more especially in the southern Hundreds of this District. See MIN, 118.

VII. THE HOGSTY of Norfolk is singular, though not particularly excellent : instead of creeping into a pigsty, in the manner usually done, a Norfolk farmer walks into his “ pig-house,” at a door similar to those of his other outbuildings ; the building is of course higher and more expensive, but certainly more commodious, than in the usual form.

VIII. GRANARIES are few : I saw none upon separate pillars ; and but very few over.

G 2

IX. WAG-

IX. WAGGON SHEDS. These in general are commodious. I met with a CART SHED on an admirable plan. The width equal to the cart and shafts; open in front; with a bank of earth on the back part, about eighteen inches high, and of such a width as just to take the wheels before the tail of the cart reach the back of the shed: the cart is backed in, the horse taken out, and the cart suffered to tilt: the bank receives the tail, while the shafts rise under the eaves of the front—dry,—and out of the way of cattle: the horse is put in with equal facility: the backband, which remains fast at both ends, is entered into the groove of the saddle, and the shafts pulled down.

X. RICK YARDS in general are small, owing to the capaciousness of the barns. It is pretty common, and very convenient, to have a rick frame at one or both ends of the barn, with a pitching hole, in at which the corn is housed, without the assistance of team labour. Sometimes these stacking places at the ends of barns are inclosed, without having a frame for the stack; which being housed immediately after the first clearing of the barn, the inclosure afterwards

terwards makes an admirable foldyard for calves or yearling cattle.

XI. FOLDYARDS—provincially, “paryards,” in general, are warm and snug: the outer fence is mostly “battoned;” namely, made with posts, and three or four wide strong rails, or “battons;” an inch to one inch and a half thick, and eight or nine inches wide; the lower ones being placed close enough for an effectual fence against swine. These in autumn are sometimes lined with tall thorn faggots, especially on the bleaker sides. The area is *parted* into separate yards with common posts and rails, to which similar faggots (provincially, “kidds”) are fastened: this, at a small expence, keeps the different species of stock separate, and renders their apartments comfortable.

XII. DRINKING PITS, notwithstanding the absorbency of the Norfolk soil, are common to most farm yards. It seems probable that they have, formerly, been made by art, and with much judgment; as in general they retain the water very perfectly. At present, however, the art, if known, is out of use: indeed the RIVU-

LETS which abound in so singular a manner in Norfolk, preclude, in some measure, the use of artificial watering places, except in or near farm yards: besides, WELLS, in general, are so shallow, and their water so excellent, that both of them might, without extreme inconvenience, be dispensed with.

THE BUILDING MATERIALS of Norfolk are,

1. BRICKS, which are here manufactured with great skill. The materials are good: the subsoil, in many places, is naturally a very fine brick earth, without any admixture being required.

Besides the common *red* brick, of which the buildings of a farm are generally constructed, Norfolk is celebrated for an admirable *white*, or rather STONE-COLOURED BRICK, which, except on a near view, has all the effect of a well-coloured stone. Of this brick the first houses in the county are built: for so expert are the moulders of this excellent material, that cornices and even columns, with their pedestals and capitals, are formed of it.

This superiority in brickmaking is, however, one of those efforts of necessity, which are frequently productive of excellency in invention: there is not, generally speaking, a
stone

stone in the county ; excepting a few flints, thinly scattered among the soil ; and excepting the *sea stone*, which, near the coast, is used instead of bricks.

2. SEA STONES, however, are, in unskilful hands, a dangerous material to build with ; for, being globular, their own weight, if the wall be high and run up hastily, is sufficient to crush it to the ground : and, when carried up deliberately, if the lime be bad, or the mortar injudiciously made, sea-stone walls are liable to part ; having nothing but the mortar to bind them together. Their durability is their best recommendation ; for, though the wall decay, the stones still are there ; and it is highly probable that many of the stones which were used in the first buildings of that material are still in use. When they are found among ruins, upon or near the site to be built upon, they may, if skilfully set (and especially if the quoins and jams be carried up with bricks), be a very eligible building material.

Weatherboarding is made little use of in Norfolk ;—in ordinary buildings, *clay daubing* sometimes is used as a substitute.

3. With respect to the materials of the HOUSE-CARPENTER, *oak* is generally used for door and

G 4

window

window frames: also for wallplates and fills of every kind, and for beams, when it can be had. But in a country where the growth of oak is confined, in a great measure, to the hedge-rows, it cannot be expected that a full supply can be spared for building. *Asb* and *elm* are used as substitutes; and, in a maritime country, *foreign timber* is had at a reasonable price.

4. COVERINGS are principally of *pantile* or of *reed*;—many *straw* roofs remain; but, at present, few new ones are put on.

REED is, at present, the favorite roof; and is of all others (good slate excepted) the most eligible for farm buildings. A reed roof properly laid, will lie fifty years without touching; and thirty or forty more, with only adjusting (“driving”) it, and levelling the hollows with a little fresh reed. At an hundred years old, it may be relaid; and will then, if laid upon the upper parts of the roof, last through a considerable part of another century.

It is principally cut from the margins of the “broads;” and is carried, perhaps, forty or fifty miles into the central and northern parts of the county.

A cover-

A covering of reed is, in the first instance, costly : but when its durability, and the high degree of preservation in which it keeps the roof are taken into the account, it is of all others the cheapest covering; besides its being, whether in the extreme of heat or cold, the most comfortable.

The price of reed, in the place of its growth, is from three pounds to three guineas a hundred; containing six score fathom; each fathom (composed of five or six sheaves) measuring six feet in circumference. A hundred of reed will cover five squares of roof: the laying is a halfpenny a yard, or four shillings and two-pence a square; and the tar-rope and rods for fastening it on, cost eighteen pence a square: so that a covering of new reed costs about eighteen shillings a square, containing one hundred square feet; besides carriage, and what is called "roofing;" namely, a cap of wheat straw placed upon the ridge, in a somewhat similar manner, and for the same purpose, as ridge tiles are put on.

This capping, which is done in a most effectual, but in a tedious and expensive, manner, costs in materials and workmanship about
sixteen

sixteen pence each foot in length ; which, upon a roof of sixteen feet and a half spar, is an additional expence of four shillings each square of reeding.

The carriage is in proportion to the distance. Taking twenty miles as a medium distance ; and one shilling a mile as a medium price ; the expente is twenty shillings a “load” of sixty fathom, or forty shillings a hundred ; which laying five squares is a further addition of eight shillings a square : therefore the whole expence of a covering of reed fetched twenty miles may be laid at thirty shillings a square *.

I am the more minute on this head, as I see this valuable material entirely neglected, as a covering for buildings, in most parts of the kingdom.

5. THE FLOORING MATERIALS of this District are ; for upper floors, *deal*, *ash*, *elm*, and *poplar* boards : sometimes *clay* is used for cottages, and for common garrets ; but, for the ground floor, *square bricks*, — — paving tiles — — provincially, “pavements” — are, in farm houses, the almost universal flooring : even the best rooms, of the

* For the method of laying reed and setting on the roofing, see MIN. 32.

first farm house, are generally laid with this material; which is manufactured in an excellent manner, of various colours, and of various dimensions, from nine inches to eighteen inches square. Two pavements of the last dimension make, for a common room, an excellent HEARTH.

6. LIME is made from marl, entirely; this District affording neither limestone nor chalk: West Norfolk, however, abounds with a species of hard fossil—provincially, “caulk”—a kind of hard chalk—from which lime of a tolerably good quality is burnt. See MANURE, p. 26.

Lime is universally *burnt* with *coals*, and generally in *drawing kilns*: it costs from seven to eight shillings a chaldron (more or less according to the distance of the carriage of the coals), and is sold for nine shillings to ten shillings a chaldron*.

Bricks are burnt principally in *kilns*; few in *clamps*: the bottom of the kiln is always set with bricks; while the upper parts are occasionally filled with tiles, pavements, and other ware.

For

* 1782. O.S. 26. Four chaldron and a half of coals (thirty-six bushels) burned thirty-four chaldron thirty bushels of lime

For the *price of building materials*, &c. see
LIST OF RATES.

For the method, and expence, of making
baychamber floors with clay, see MIN. 15.

For observations on the coping of *gables*,
see MIN. 25.

For the method of *laying reed*, and setting
on ridge caps, see MIN. 32.

For the method of *laying pantiles* on reed,
&c. see MIN. 33.

For observations on *check beams* across barn-
floors, see MIN. 35.

lime (thirty-two bushels). In general, however, thirty-
two chaldron is the produce of that quantity: this is
somewhat more than *seven* chaldron of lime to a chaldron
of *sea-coals*.

One chaldron of coals and carriage four miles	1	17	6
Labour, at twenty-pence a chaldron of lime,	0	11	8
Horse and cart for moving marl,	-	-	0 1 0

£ 2 10 2

Seven chaldron, at seven shillings and two-			
pence a chaldron,	-	-	£ 2 10 2

I have known a quantity sold, for manure, at eight
shillings a chaldron.

The chalk of Swaffham yields about *five* chaldron of
lime (thirty-two bushels) to one chaldron of *sea-coals*
(of thirty-six bushels).

For

For observations on the utility of *laying tiles on mortar*, see MIN. 48.

For observations on *buttresses*, see MIN. 60.

For observations on the *general management of repairs*, see MIN. 64.

For the effects of a *high wind*, see MIN. 91.

For general observations on the *residence of workmen*, see MIN. 92.

For description of a *farm yard* in Fleg, see MIN. 106.

For observations on *farmyard walls*, see MIN. 115.

For observations on *sea stone walls*, see M. 116.

For the description of a *bullock shed* in Blowfield Hundred, see MIN. 118.

For the method of building a hog cistern, see MIN. 131,

13.

GATES and DEAD FENCES.

IT has already been mentioned as a practice of Norfolk, for landlords to furnish their tenants with GATES ready-made.

This, when an estate is intended to be made the most of, and where the tenants, being under lease, have no right to expect other indulgences than the lease gives them, is a good practice ; for when rough timber is allowed, even though it be set out, a designing tenant will generally get the advantage, let the estate be ever so well looked after.

It is reasonable, however, and is, now, on some estates customary, in this case, to charge the tenant for sawing and making up ; also for hewing posts ; and for sawing out such parts of gates as are wanted for repairs ; which, as well as putting down posts and hanging new gates, is generally done at the expence of the tenant, who sometimes, but not always, finds *gate irons*.

It

It is a practice, not uncommon here, to drive hooks on both sides the hanging-post ; in order that the gate may be shifted to this or that side, as the pasturing stock are shifted : and sometimes I have seen two gates hung upon the same post ; one on either side : a most effectual guard, when both sides are in pasture.

The prevailing DEAD FENCE is *battoning* (see FOLDYARD) ; the tenant being charged for hewing posts and sawing battons, in the same proportion he is for gates or gatestuff ; namely, the full expence of workmanship.

Even STILES are frequently provided, and charged for, in the same way, by landlords.

For an instance of *ivy* being serviceable to a *seastone fence wall*, see MIN. 9.

For general observations on *farmyard fence walls*, see MIN. 115.

For the method of setting a *furze-faggot fence*, see MIN. 135.

14.

LIVE HEDGES.

THE WOODLANDS of East Norfolk being few, UNDERWOOD, either in *woods* or in *coppices*, is in a manner unknown. The HEDGEROWS, alone, may be said to furnish the District with *timber*, *topwood*, and *underwood*.

Old hedges, in general, abound with oak, ash, and maple stubs, off which the wood is cut every time the hedge is felled; also with pollards, whose heads are another source of firewood; which, in a country where coals can be had only by sea, is of course sought after: yet it is a fact, as notorious as it is interesting, that East Norfolk does not experience, to any degree of inconveniency, a want either of timber or firewood; although its entire supply may be said, with little latitude, to be from hedgerows.

It is probably from this circumstance, that hedgewood is suffered to stand to so great an
age

age and growth as it does in Norfolk. Twelve or fourteen years is considered as a moderate growth ; twenty, and even thirty years it is sometimes permitted to remain without cutting. The “ stubwood,” it is true, by this means acquires a degree of utility and bulkiness ; but the “ thorns” are in the mean time overhung and destroyed.

It appears by the HEADS OF A LEASE * that the topwood, the stubwood, and the loppings of timber, if any, belong to the landlord. They are, however, in general, of more value to the occupier of the land than to any other person ; besides the tenant having a degree of claim to the refusal of them ; and it is customary to sell them to him at a moderate valuation.

I. THE METHOD OF VALUING HEDGEWOOD is as follows : the tenant having been consulted ; and the particular hedge or hedges to be felled, in any given season, having been determined upon ; each *top* is (or ought to be) valued and minuted separately ; carrying the *stubwood* in the eye until some certain quantity is gone by. But a readier method is, I am told, sometimes practised ; namely, that of walking by the side of the hedge without particularizing the indivi-

* Page 72.

duals ; or, which is still shorter, but still less accurate—that of standing at one end, and, by merely glancing the eye along it, putting down a random valuation.

II. But valuing the tops and stubwood, though done in the most accurate manner, is by no means all that is necessary to be done in setting out what is called “ditching :” every TIMBER TREE, and every POLLARD, standing in the hedge to be felled, should be cautiously attended to.

The timbers which are going to decay, or which, to appearance, will receive injury before the next fall of the hedge, should be *marked to come down* : if gate-posts be wanted upon the farm, such pollards as are fit for that purpose should be set out ; also all such pollards as are already dead, or will not to appearance bear a top equal to their present value, before the next fall of the hedge, ought to be valued to the tenant as firewood.

III. Other very material things to be attended to, are the YOUNG OAKLINGS rising among the hedgewood ; as well as the “STANDS,” and the GROWING TIMBERS ; which ought to be *pruned*, and *set up*, in such a manner, as to give freedom to the hedge and the herbage growing under them ;

them; and at the same time to encrease their own value, by giving them length and cleanness of stem.

This part of the business, however, ought not to be left to the ditchers; but should be performed by skilful woodmen, sent round for the purpose (see MIN. 5. on this subject).

It may be needless to add, that to go through this various business properly, passing once along the hedge is not sufficient: the timbers, pollards, and timberlings, should first be inspected, and, if requisite, marked; by which means the quantity of firewood will be more fully ascertained, and its valuation, by this double view, be rendered more accurate*.

* Left the reader should think that I am here deviating from the plan of this part of the work, by entering into the didactic where description only was necessary, more especially as similar directions are scattered in the Minutes; I beg leave to observe, that the subject appears to me to be of so much importance, and to have been so slightly, if at all, touched upon by writers, that it ought to be placed in every point of view which will throw fresh light upon it. And although I may, in another work, have treated very fully upon this subject, I nevertheless think it proper to detail, in this, the incidents and reflections which have arisen, immediately, out of my practice and observation in Norfolk.

IV. THE TREATMENT OF OLD HEDGES.

The hedgewood being felled to the stub, and the pollards headed, the ditch is scoured to its original depth; the best of the soil being collected into heaps on the brink of the ditch for the use of the farmer, in bottoming his yard or his dung heaps, and the remainder laid to the roots of the stubs, or formed into a bank behind them. On the top of the bank a brush hedge is set as a guard to the back;—while sometimes the bottom of the ditch is *pointea* (that is, narrowed to a point), or filled with thorns or other bushes,—as a guard to the face of the young hedge.

The last, however, is seldom done, nor often requisite; for the Norfolk husbandmen are pretty observant in cutting those hedges, in any given year, which face their wheat in that year; by which means the young hedge acquires four or five years growth before the inclosure, it is exposed to, becomes a spring or summer pasture.

This is the usual treatment of old *rough* hedges in which pollards and stubwood abound, and which constitute the principal part of the hedges of East Norfolk.

There

There are, however, many *planted* hedges; some of them very old: of these, a twofold treatment prevails: namely, that above-described; and another, less eligible, called "buckstalling;" which is cutting off the hedgewood, about two feet above the top of the bank, and "out-holling," that is, scouring out the ditch for manure; without returning any part of the soil to the roots of the hedgewood. But by a repetition of these bad practices, the hedges, situated as they are in Norfolk, near the top of an artificial bank, with a deep ditch beneath them, are at length left destitute of mould to nourish and support them, dwindling away, stub after stub, until they are no longer adequate as fences.

The practice of *plashing*, or laying hedges, is, in a great degree, unknown in this District. —Workmen, from countries where this is a favorite and common practice, have been employed by gentlemen in this District; but the success has been such as has rendered those to whom it has become known, inveterate enemies to the practice.

The unpardonable custom of hacking off the side boughs of tall hedges, leaving the tops

to overhang the young shoots, is here too prevalent. But suffering the soil to be washed away from the roots, is not more destructive to a hedge than is this vile practice.

If "kid" and "oven fuel" be wanted, let a hedge which is fully grown be felled to the stub. There is scarcely a farm in the District which is not more or less "wood-bound;" that is, injured by overgrown hedges; which are, year after year, receiving irreparable damage for want of cutting; while the undergrown ones are damaged by a less pardonable treatment.

The tenant's motive is founded in self-interest: he gets fuel and "manner," without any contingent expence or trouble;—and whether the hedge endure, henceforward, for one or for two centuries, is not an object to him.—But as, at the expiration of his lease, his farm will be worth more or less, according to the state of its fences, it ought to be the especial care of the landlord, or of his agent, to see that they are properly treated.

V. THE METHOD OF RAISING NEW HEDGES
in Norfolk is a cheap one; and may be practised

tified in any country where the soil is free from stones and other obstructions of the spade.

The hedgeling is defended on one side by a deep ditch, while the other side is sufficiently guarded by the excavated mould formed into a mound, and crested with a stout brush hedge; in the setting of which the Norfolk labourers, from constant practice, are very proficient.

It is a striking, and indeed an interesting fact, that hedges in Norfolk are raised with good success, although neither post, rail, stake nor edder be made use of in defending them.— And it may be a moot point, whether a want of underwood has given rise to this, as a practice of necessity; or whether the practice, by rendering coppices less valuable, has been a means of doing away, so completely, the woodiness of this District.

But notwithstanding much praise is due to the Norfolk method of defending young hedges, the mode of planting, here in common use, is very reprehensible. Instead of the quicksets—provincially, “layer”—being planted in or near the soil which is to support it, they are laid in near the top of the bank—perhaps, two feet above the natural level of the

H 4

adjoining

adjoining inclosure—and probably five feet above the bottom of the ditch: nor are they, there, planted with their roots downward, in the manner which nature dictates; but with their heads pointing into the ditch: and, to complete the absurdity of the business, the workman, in dressing the face of the bank, frequently draws the back of his spade downwards over the tops of the plants, pressing them, of course, flat to the face, in which they not unfrequently stick! yet, he says, he thereby does no harm: and it is possible he may be right; but, to a person who has seen any other method of proceeding, he appears to be doing very wrong.

Nevertheless, it is surprizing to see the progress which quick, thus planted, will sometimes make the first two or three years after planting: and this, probably, is the false light by which the advocates for the method are led away. The top of the bank is loose *made ground*, and the upright brush hedge, by collecting driving rains, supplies it amply with moisture. But the same rains not unfrequently assist in washing down the face of the bank, together with the quick, into the bottom of the ditch.

Even

Even the ordinary mouldering of the bank, by frosts and moderate rains, leaves, in the course of a few years, the roots entirely exposed.— Should the plants preserve their upright posture, they soon lose their vigour; but it is no uncommon thing to see them hanging, perhaps by one fibre, with their heads downward against the face of the bank. Consequently, hedges which have been planted in this manner are full of dead gaps; and the plants which have survived and have got down to the natural soil, are, by the crowns of their roots being constantly exposed, stunted and unhealthy.— Whoever will be at the trouble of making the observation, will find, that the full-stemmed luxuriant hedges, which occur, more or less, in every part of the District, (the Norfolk soil being naturally affected by the hawthorn) but more particularly in the Fleg Hundreds, have been planted at or near the foot of the bank.

The reason why a hedge planted low *in the face* of the bank, does not flourish for a few years after planting is obvious: the bank being steep, and without a break from top to bottom, it shoots off the rain water, which falls against it, into the ditch; while that collected by the
dead

dead hedge, above, is not sufficient to moisten it to the bottom; which is, of course, deprived of the benefit of rain water. Besides this want of moisture, the superincumbent weight of the bank is inimical to the tender fibrils of the young plants; and their progress, so long as they remain confined under the bank, and cramped with its pressure, is of course slow.

But this difficulty once overcome; the roots having once reached through the bank, and got possession of the adjoining inclosure; the plants flourish amain; while their principal roots being firmly and coolly situated, they continue to flourish, even in defiance of "buck-stalling" and "out-holling."

It is not my desire to censure the practices of Norfolk husbandmen; much less my intention to aim generally, at their instruction: I rather hope to disseminate over the Island the excellencies of their management: nevertheless, Norfolk, as every other District I have yet visited, has its prejudices, and its want of *perfection*, in particular departments of management. It may however be said, and I believe with strict justice, that no District has *fewer* imperfections

imperfections than Norfolk; and what is singularly to the credit of the Norfolk husbandmen, their perseverance in practising the method of planting hedges above described, may perhaps be called their only *rooted* prejudice.

The reason why quick, recently planted at the foot, *and in the face*, of a tall bank, is checked in its growth, for the first two or three years, is not more obvious than the method of preventing it. If instead of laying-in the plants in the immediate face of an unbroken bank, they were to be planted on the back part of an *offset*, or break in the bank, the evil effects abovementioned would be removed: for by this simple alteration in the formation of the bank, the young plants become supplied, at once, with every thing necessary to their support; namely, moisture, air, and loose earth for the infant roots to strike in.

This is not merely a theoretic plan: it is in common practice in many parts of the kingdom; and I have myself practised it, in three different and distant parts of it, with success.

In Norfolk however, where hares are vermin, some caution is necessary: the shelf should not be made too wide; and should, while
the

the plants are young, be kept stuck with bushes, to prevent the hares from running along it.

The size of the ditch is from three to five feet wide—and two to three and half feet deep; the medium, four feet wide and three feet deep, with a bank three feet high, forming what is called “a six-foot dick.” For an out-side fence against a common or a road, five feet wide and seven feet high, (measuring from the bottom of the ditch to the top of the bank when fresh-made) is a more suitable fence.

The price of a common six-foot ditch is fourteen pence a rod (of seven yards), or one shilling a rod, and beer, for making the ditch, planting the layer, adjusting the bank, and setting the hedge.

The mean distance of planting quick is about six inches: the calculation is a hundred to three rods; the price fourpence to sixpence a hundred.

Thus, *the whole expence* of planting a quick hedge in Norfolk is not twopence halfpenny a yard; while in many parts of the kingdom, where two rows of posts and rails are in common use, eightpence to one shilling a yard is the usual expenditure.

At

At present, it is a practice, though perhaps not of long standing, to sow *furze seed* upon the top of the bank, as a guard successive to the brush hedge, and as a source of kid and fuel. The common way is to sow it *upon* the back, at the foot of the dead hedge: this, however, is injudicious; for the furze being of a spreading nature it is liable, after the hedge is gone to decay, to overrun the quick. Many fine young hedges I have seen materially harmed through an injudicious management of the furze hedge; which ought to stand *on the back*, not upon the top, of the bank; as in this situation it is a better guard to the bank (which is liable to be scraped down by cattle and sheep), and less injurious to the hedge it is intended to defend. About two thirds of the distance between the foot of the bank and the foot of the brush hedge; namely, one third of that space from the foot of the hedge; is a good situation. But see MIN. 104. on this subject.

I met with one instance, and that in the practice of one of the first men in the county, of furze seed being sown on what is called the
 “ out-

"out-holl," namely, the outer brink of the ditch.

This is a good guard to the face of the hedge : and, if the side towards the inclosure be kept cut, to prevent their spreading into it, furzes, growing in this situation, become a supply of fuel, without being an incumbrance ; a ditch being always considered as irretrievable waste ; and this is the first instance I have met with of its being rendered valuable by being *cropped*. If instead of sowing the furze seed on the brink, it were drilled on the slope of the ditch, there would be less danger of the plants encumbering the adjoining inclosure.

A principal inconveniency of the Norfolk mound fence is the moulderling of the back of the bank, for the first two or three years after making or repairing ; before it gets grassed over.

To obviate this I have had *grafs seeds* sown, after the bank was raised, but before it was finished, and the seeds dressed in with the back of the spade, in the finishing operation of the bank : the success has been beyond expectation : in a few weeks the bank becomes green,
and

and the first year furnishes a supply of useful herbage; instead of being, as it usually is, a nursery of wingseeded weeds. The back of the bank in this case should not be made too upright. The best seeds are those of white clover (among which those of ray grass or other grasses may be mixed); for this plant, by running upon the surface, and striking root at the joints, soon forms the requisite matt of herbage.

VI. REPLANTING WORNOUT HEDGES. It will be doing justice to the Norfolk management to mention a practice, which at present prevails, of grubbing up old wornout hedges, and planting new ones in their stead.

In this case the old hedge is (or ought to be) thrown down in autumn—that the soil may be thoroughly soaked and tempered with the winter's rains and frosts:—early in spring the foot of the bank should be formed, and, in due season, the layer put in, and the fence completed.

By this means a disgraceful nuisance is removed, and a new straight hedge obtained; and this at a small additional expence.—The roots alone, if the old hedge be full of large stubs, and loaded with stems,—will pay for grubbing:

abundantly in the Norfolk soil; some few barren spots excepted; in which situations *furze* is the principal fence. *Crabtree* is sometimes, though seldom, planted; but I have seen it make a rapid progress upon very poor soil; and for such it would, I apprehend, be found preferable to the hawthorn. *Holly* abounds in old hedges; growing very luxuriantly, and forming an admirable shelter for cattle in winter; besides giving, in that bleak season, a cheerfulness and fancied shelter to the face of the country.

IX. Upon some estates it is the practice to put in, when a new hedge is planted, a holly at every rod, and an OAK PLANT at every two or three rods, among the whitethorn layer.

This is an excellent practice; provided the young oaks be trained to a proper height before they be suffered to form their heads. For, in this case, they will become a valuable source of timber, without injuring, in any material degree, the inclosures they grow between. It is the roots of the ash and elm, and the tops of low pollards, and tall overgrown hedgewoods, which are injurious to the farmer. A timber oak, of fifteen to twenty feet stem, does very

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little

little if any injury either to the crop, or the hedge growing under it.

But if, on the contrary, the oaklings, thus planted, be suffered to rise with more than one stem, as stubwood; or, rising singly (which is seldom the case in a young hedge), they be permitted to form their heads at eight or ten feet high, with flat wide-spreading tops,—they lose their intended value, and become nuisances, not only to the adjoining inclosures, but to the hedge in which they grow.—Eligible, therefore, as it is to plant young oaks among hedgewood, the advantage to be obtained from it rests wholly on the after-management.

For reasons why a tenant should not be suffered to *prune timber trees*, see MIN. 5.

For reflections on the time of cutting hedges, see MIN. 34.

For a proposed method of *preventing tenants from destroying hedges*, see MIN. 42.

For observations on *ditches against the sides of hills*, see MIN. 45.

For observations on *ivied ditchbanks*, see MIN. 63.

For

For observations on *thinning timbers*, and on *twin timbers*, see MIN. 85.

For observations on *renewing* wornout hedges, see MIN. 87.

For an instance of a sufficient *furze hedge*, see MIN. 88.

For general observations on *timbers and pollards* in hedges, see MIN. 90.

For an instance of *ditches washed down* by rain, see MIN. 103.

For the method of *sowing furze seed*, with general observations on *furze hedges*, see MIN. 104.

For the management of hedges in Fleg, see MIN. 106.

For reflections on the *Midsummer shoot*, see MIN. 130.

15.

INCLOSURES.

THIS DIVISION of the county being principally inclosed—some heaths and a few common-fields towards the north coast excepted—instances of INCLOSURE seldom occur. Two instances, however, have fallen so far under my notice, as to enable me to convey a general idea of the principles on which they were conducted.

One of them took place in the northern part of the District. The subjects of inclosure were a heathy waste of several hundred acres, of a tolerably good soil—(but, being overgrown with furze, heath, brakes, and other incumbrances, afforded little profit either to individuals or the community); together with two or three hundred acres of common-field land

This inclosure was prosecuted on the same liberal principles which raised the HOLKHAM
estate,

estate, and other estates in West Norfolk, to their present state of productiveness. But as the particulars which I procured, respecting it, will appear in a Minute at the close of the second volume, it is unnecessary to mention them here.

The other took place (or was intended to take place) in a more southern part of the District: the subject, part of an extensive and chiefly barren heath, belonging to *several* surrounding *parishes*, and situated *distant from manures*. But here I am debarred, by motives which I flatter myself are a sufficient excuse for my silence, from entering into further particulars; and my only reason for introducing the article INCLOSURES into the present volume was, to gain an opportunity of inferring, from observations made in this District, that very much depends, not only on the MANAGEMENT, but on the SUBJECT, or site, of inclosure; and that lucrative and laudable as inclosures in general are, or might be rendered, it behoves men of landed property, and all men concerned in these important transactions, to study with sufficient attention the

NATURAL ABILITY of the object in view, and to raise their estimate with circumspection, on PRINCIPLES OF MANAGEMENT sufficiently enlarged, to guard against miscarriages, and secure, with a degree of moral certainty, a PERMANENT IMPROVEMENT.

For some account of the *Felbrigg* inclosure, see MIN. 137.

16. PLANT-

16.

P L A N T I N G.

PLANTING is not only laudable as an art, at present of the highest importance to this island, but pleasurable as an amusement.

In Norfolk, I had neither leisure nor opportunity of extending, on a large scale, my *practice* in this art ; but, as far as *observation* could inform me, I had every advantage. A person who had been regularly bred up as a nurseryman, and who was a credit to the art he professed, gave me every opportunity of making myself fully acquainted with the business of the nursery, and the *manual operations* of planting : while a suite of plantations, of various ages, and in various *states*, passing daily under my eye, afforded me an opportunity, equally for-

tunate, of making my observations on what may be termed the *theory* of planting.

But my mind being sufficiently employed on the subjects of ESTATE AGENCY and HUSBANDRY, I did not attempt, in Norfolk, to digest my ideas upon PLANTING. I was satisfied with having gained a general knowledge of the subject, and with having impressed on my memory a few leading principles.

HEDGEPLANTING, and the management of HEDGEROW TIMBER, I considered as inseparable departments of the management of estates (so nearly are planting and estate agency allied); and therefore studied them with unremitting attention. I was also led, in a few instances, from the estate to the plantation, as will appear by Minutes made at the time of practice; and was also induced to minute a few striking incidents which occurred to my observation.

BUT THE PROPAGATION OF WOODLANDS, merely as such, not being a practice of the District, I had few opportunities of making observations on that important subject. Ornamental plantations, about the residencies of men of fortune, are here, as in other Districts, fashionable;

fashionable : not, however, as objects of ornament merely, but likewise as nurseries of game.

But it being my intention to confine myself, in this work, to utility, rather than to treat either of ornaments or amusements, I will, under this head, only beg leave to recommend to the proprietors of landed estates in East Norfolk to propagate COPPICE WOODS on the springy margins of meadows, and on those incorrigible swamps which occur in almost every estate ; and to remove the woody hedge-rows, so disgraceful to Norfolk as an arable country : raising, in the new-planted hedges, OAK TIMBERS at suitable distances ; training them up to such height as will render the timber of the greatest value, and do the land they grow in the least possible injury. I will also beg leave to intimate that the spirit which, at present, very properly prevails of extirpating ASH TIMBER from hedgerows, will, in all human probability, be productive of a scarcity, in time to come, of that necessary material in rural affairs : and it is equally probable, that whoever, at this time, propagates GROVES OF ASH, in angles and vacant corners, will be increasing, at a small expence, the value of his estate, and

and be providing, at the same time, a *necessary of life* for the rising community.

It now only remains to mention the method of **SELLING** and **TAKING DOWN TIMBER**, in this District.

The prevailing practice is to sell it standing, at so much a ton when fallen; measuring the *timber*, down to six inches timber girt; the *topwood* and the *bark* (of oak) becoming the property of the purchaser; who is usually at the expence of taking it down.

It is likewise customary for the purchaser to dispose of the bark (of oak), and sometimes the topwood, by the same admeasurement; the prices of both varying according to the proportion which the tops of the trees, under sale, bear to their stems.

The price of oak timber, in 1782, was three guineas to three pound fifteen shillings a ton, of forty feet: the price of *oak bark*, from ten to twelve shillings: and of *topwood*, from seven to twelve shillings, each load of timber. The price of naked oak timber, in the rough, was fifteen to twentypence a foot.

The price of ash timber, standing, was forty to fifty shillings a ton: in the stick, ninepence to one shilling a foot.

The

The *elm* of Norfolk is of little value ; for before it acquires a size to be useful, it begins to decay at the heart ;—perhaps, owing to the lightness of the soil,

The *ash* on the drier lighter soils appears stunted and short ; but in, and near, the meadows and swamps, it is of a firm growth, and a good quality.

The *beech* is very rare in this District : nevertheless, I have seen it, upon a substratum of marl, of a beautiful growth, and considerable size.

The method of TAKING DOWN timber, in Norfolk, is uniform, and, perhaps, peculiar to the country. It is called, very aptly, *grub-felling* : the operation partaking both of grubbing and of felling with the axe,—in the common way aboveground ; a method which is wasteful of timber. The Norfolk woodman, therefore, fells below the surface of the ground ; by cutting off the horizontal roots close to the stem ; which, instead of shortening, he, in effect, lengthens, by adding to it a conical point, cut out of the crown of the root : so that by this way of proceeding, a greater length of timber is obtained, than by,
first,

first, grubbing, and, afterward, cutting off the butt with a saw. Grubfelling is, no doubt, the most eligible way of taking down hedgerow timber; and this accounts for its being the established practice in Norfolk.

For an instance of the circumspection requisite in *pruning hedgerow timbers*, see MIN. 5.

For an instance of *tapping young oak plants*, in a neglected nursery ground, with a common spade, see MIN. 36.

For an instance of success in *transplanting large oaks*, see MIN. 37.

For general observations on the proper soil and situation for the *ash*, see MIN. 38.

For an idea relative to *changing the crop of timber* in a given situation, see MIN. 81.

For observations on *thinning hedgerow timbers*, and on *twin timbers*, see MIN. 85.

For general observations on the treatment of *timbers and pollards in hedges*, see MIN. 90.

For an instance of *thinning a tall mixed plantation*, with observations on different *species of timber trees*, and with reflections on the *after-management of plantations in general*, see MIN. 95.

For observations on the *Midsummer shoot*, see MIN. 130.

GENERAL

17.

GENERAL MANAGEMENT

O F

F A R M S.

THE PRINCIPAL OBJECTS of the East Norfolk husbandry are,

BULLOCKS,

BARLEY,

WHEAT ;

the other productions of the District being in a great measure subordinate to these three ; from which, chiefly, the farmer expects to pay his rent and support his family.

The bullocks are fatted chiefly on

TURNEPS,

and sometimes finished with

RAY GRASS, and

CLOVER :

which last are also raised for horses, store-cattle, and the dairy.

OATS,

OATS,

too, are raised in small quantities for horse-corn; and

BUCK *,

in great abundance, for pigs and poultry. Some few

PEAS

are also grown for swine (or are bought up by the millers, to improve the *colour* of their wheat-flour);—and some, but very few,

VETCHES,

for foiling horses.

WELD,

HEMP †,

HOPS, and

COLE SEED,

(the last more particularly in Fleg) are occasionally raised, but in inconsiderable quantities.

* BUCK—*polygonum fagopyrum*—buck wheat, or *brant*; its common name in the southern hundreds of East Norfolk; but in *this* part of the county its only name is BUCK: indeed the addition *wheat* (probably a corruption of the Dutch *weet*) is absurd, and altogether improper.

† Some small quantities are grown upon the eastern coast.

SHEEP

SHEEP

can scarcely be enumerated among the OBJECTS of the East Norfolk husbandry ; and

Cows

are kept chiefly for the purpose of breeding, and the use of the family.

SWINE and

POULTRY

are well attended to ; and, in the southern parts of the District, are carried, in great quantities, to the Norwich and Yarmouth markets.

RABBITS,

though some few warrens occur in East Norfolk, are not a staple production.

But before the particular practices observed, and the processes made use of, in obtaining, separately, these several PRODUCTIONS, can, with any degree of propriety, be described ;—it will be necessary, first, to premise such GENERAL PROCESSES, and departments of management, as do not pertain, especially, to any individual OBJECT.

THE GENERAL SUBJECTS necessary to be premised on the present occasion, are,

The prevailing method of LAYING OUT FARMS, in Norfolk.

The

THE SUCCESSION OF ARABLE CROPS, in this District.

THE SOIL PROCESS;—or the Norfolk method of putting the soil into a proper state of cultivation.

THE MANURE PROCESS;—or the general application, and method of applying, manures in Norfolk.

THE SEED PROCESS;—or general observations on the different modes of sowing.

THE VEGETATING PROCESS;—or the summer care, protection, and management of crops, in general, from seed-time to harvest.

THE HARVEST PROCESS — not the process of harvesting any one particular crop; but the general business of harvest.

THE FARMYARD MANAGEMENT; not a detail of the barn management and consumption of one separate species of crop, nor the winter treatment of any one particular species of livestock; but a description of such general business of the barn, and the farmyard, as cannot with the smallest degree of propriety be given under any one species,—either of stock, or crop.

For

For observations on the Norfolk farmers partiality to arable land, see MIN. 49.

For further observations on this subject, and of their neglect of grassland, see MIN. 51.

For an evidence that the stock of a farm ought to be adapted to the given soil, see MIN. 75.

For an evidence of the cheapness of the Norfolk practice of husbandry, see MIN. 98.

For the general management of the Fleg Hundreds, see MIN. 106.

For an evidence of the excellency of the arable management of Norfolk, see MIN. 112.

For an evidence of its being adapted to a dry soil, see MIN. 114.

For the general management in Blowfield Hundred, see MIN. 118.

18.

LAYING-OUT FARMS.

MANY of the present farms, especially those of considerable size, have formerly lain to perhaps two, three, or more separate messuages; each, perhaps, occupied by its respective owner: this, and the intermixture of property already spoken of, accounts for that abundance of petty inclosures,—or “pightles”—so disgraceful to East Norfolk as an arable country.

It is, however, the prevailing fashion at present, when adjoining pightles belong to the same proprietor, or when they can, by exchanges, be brought into the same hands, to erase the intermediate fences, and lay them into inclosures proportioned to the size of the farm to which they belong.

This, namely proportioning the size of the fields to that of the farm, is a matter to which
Norfolk

Norfolk husbandmen, at present, are very attentive. The singular system of husbandry practised in this District calls for a greater number of divisions than are necessary in most other places. For although an East Norfolk farmer divides his farm into what he calls "six shifts," to receive his principal crops in rotation, he does not wish for fewer than nineteen or twenty arable divisions, in order that he may have an opportunity of distributing his turnep crop over different parts of his farm.

For similar reasons he does not class, but intermixes, his other arable crops.

This intermixture of crops renders driftways necessary;—and they are nowhere more numerous than in Norfolk.

Another important matter to which Norfolk husbandmen are attentive in laying-out their farms, is that of endeavouring to lay their "furlongs" north-and-south, that the sun may have an equal influence on either side the narrow ridges, upon which their wheat is almost universally raised.

19.

S U C C E S S I O N .

IN NORFOLK, as in other arable countries, husbandmen vary more or less in the succession of crops and fallows to each other.— But if we confine ourselves to *this* District; namely, the north-east quarter of the county; we may venture to assert, without hazard, that no other District of equal extent in the kingdom is so invariable in this respect; common-field Districts excepted.

It is highly probable, that a principal part of the lands of this District have been kept invariably, for at least a century past, under the following course of cultivation :

Wheat,

Barley,

Turneps,

Barley,

Clover,

Ray grafs, broken up about Midsummer, and fallowed for wheat, in rotation.

Thus,

Thus, supposing a farm to be laid-out, with nineteen or twenty arable divisions, of nearly equal size, and these to be brought into six regular shifts, each shift would consist of three pieces; with a piece or two in reserve, at liberty to be cropped with oats, peas, tares, buck; or to receive a thorough cleansing by a whole-year's fallow.

This course of culture is well adapted to the soil of this District, which is much more productive of barley than of wheat; and is in every other respect, as will hereafter appear, admirably adapted to that excellent system of management of which it is the basis.

The soil of the southern parts of the District being stronger and deeper than that upon which the foregoing course of crops is prevalent, it is better suited to wheat; and there the round of

Wheat,
Turneps,
Barley,
Clover,

is common; though not in universal practice.

This difference in soil and management renders it necessary to consider the southern

Hundreds of Fleg, South-Walsham, and Blowfield, as appendages, rather than as parts, of the District most immediately under description: which is furnished with a less genial soil; namely, that shallow, and somewhat lightish, sandy loam, which may be called the common covering of the county; broken, however, in some places, by a richer, stronger, deeper soil; and in others, by barren heaths and unproductive sands; from which even the Hundreds of Erpingham, Turnstead, and Happing, are not entirely free; though, perhaps, they enjoy a greater uniformity of soil than any other District of equal extent in the county.

This, therefore, is the site best adapted to the study of the system of management which has raised the name of Norfolk husbandmen, and which is still preserved, inviolate, in this secluded District. For a shallow sandy loam, no matter whether it lie in Norfolk or in any other part of the kingdom, there cannot, perhaps, be devised a better course of culture; or, taken all in all, a better system of management, than that which is here in universal practice *.

* If any improvement of the present system can be made, it would perhaps be by adopting the practice of a judicious

But excellent as this succession of crops undoubtedly is, it cannot be invariably kept up; for even a Norfolk husbandman cannot command a crop of turneps or a crop of clover; and when either of these fail, the regularity of the succession is of course broken into.

If his turneps disappoint him, he either lets his land lie fallow through the winter, and sows it with barley, in course, in the spring; or more frequently, though less judiciously, sows it with wheat in autumn; sometimes, though not always, sowing it with clover and ray grass in the spring; by this means regaining his regular course.

If the clover miss, the remedy is more difficult; and no general rule is in this case observed. Sometimes a crop of peas is taken the first year; and the next, buck plowed under: or perhaps a crop of oats are taken the first year, and over these clover sown for the second: in

cious husbandman in the northern part of the District (Mr. Edmund Bird, of Plumstead); who divides his farm into seven, instead of six, shifts; his course of *crops* are the same as those of his neighbours; his seventh shift being a whole-year's *fallow* for wheat.

either of these cases, the soil comes round for wheat the third year, in due succession.

It has already appeared in the HEADS OF A LEASE, page 75, that the Norfolk farmers are restricted from taking more than two crops of corn successively. At the close of a lease this restriction may sometimes have a good effect; for ill-blood between landlord and tenant too frequently leads a farmer to do what he knows will, in the end, be injurious both to himself and his farm. The crime of taking more than two crops of corn successively is, however, held, by farmers in general, in an odious light, and is never practised by a good farmer, unless "to bring into course" a small patch, with some adjoining piece;—or to regulate his shifts.

20.

S O I L P R O C E S S.

IN THIS important department of husbandry the Norfolk farmers are proficient.—It is observable, however, that Norfolk being an old-cultivated country; and having been, century after century, kept under a course of arable management; the difficulties of breaking-up rough waste lands, and old leys, are, at present, unknown; the whole business of the soil process being, now, the regular routine of removing those foulnesses, which all arable lands are liable to; and in putting the soil into a fit state for the reception of the seed.

But these operations, simple as they may seem to unpractical observers, require much skill and judgment; for on a proper conduct in this department depends, considerably, the profit or loss of an arable farm. And as the Norfolk husbandmen appear to me to be masters in this art, I will endeavour to convey to my readers, in an ample manner, their conduct in this particular;

cular; in doing which, it will be proper to consider the following articles separately:

- | | |
|---------------|---------------|
| 1. Plowing, | 4. Cleansing, |
| 2. Harrowing, | 5. Laying-up, |
| 3. Rolling, | 6. Draining; |

and, previously, to give some account of the singular practice of this country, with respect to the hours of work observed in every department of the soil process.

The universal practice, I believe throughout the county, is to go what is called "two journeys." In winter, when days are short, the teams go out as soon as it is light, and return home at twelve o'clock to dinner:—go out again at one, and remain in the field until dark. In longer days, the custom varies:—the most general practice is to go out at seven in the morning;—return at noon:—go out again at two;—and return at seven in the evening.—Ten hours; namely, five hours each journey;—are the longest hours of work; except in the hurry of barley feedtime, when these hours may sometimes be exceeded.

The length of day is, therefore, not excessive; but the work performed in so short a time is extraordinary. The Norfolk plowmen

men always do as much—in general, a great deal more—in one journey, that is in five hours, —than plowmen in general do in eight hours; which, in most parts of the kingdom, is the length of the plowman's day.

This fact, however, is no longer extraordinary, when we observe their paces, respectively. Plowteams, in general, travel at the rate of one to two miles an hour; whereas, in Norfolk, they step out at not less than three to four miles an hour; and the same, or a greater agility, is preserved in the other departments.

I. PLOWING.—Every thing is plowed with two horses, abreast, driven and guided by the plowman (see IMPLEMENTS); and the common day's work, except in wheat seedtime is two acres! a fact, this, which nothing but actual observation could have taught me to believe.

The Norfolk husbandmen pay due attention to the *state of the soil* to be plowed, being careful not to plow it too wet*, nor too dry; the

* The Norfolk plowmen have a singular expedient to prevent the soil when moist from turning up in whole glossy furrows, which they term "scoring;" to prevent which they tie a piece of strong rope-yarn round the plate or mouldboard; which, by this means, is prevented from acting as a trowel upon the soil.

latter

latter most especially: not only because their plow and team are ill calculated for stubborn work; but lest, in breaking up the soil at a time when it is too dry to be cut clean with the share, it should rise in clods, and thereby disturb the "pan;" which, upon every occasion, is held sacred (see SOIL).

Instances of the mischiefs of *deep plowing* are related: one of them by an old, and most judicious husbandman, to whose opinion the greatest deference and attention is due*. His men having, in his absence, plowed part of a close when it was too dry, it broke up in large thick clods; the pan, which adhered to the soil, being of course brought up to the surface. He immediately foresaw the effect which, I have not a doubt, followed. This patch, from no other apparent circumstance whatever, could not, with all his skill and industry, be brought to bear a crop of any kind equal to that of the rest of the close, for six or seven years afterward. The crops on this part were uniformly, and obviously, not only foul, but bad; and this, notwithstanding an extraordi-

* Mr. Arthur Bayfield, of Antingham.

nary allowance of manure and tillage were, from time to time, bestowed upon it.

From this and other instances of a similar kind, as well as from general observation, I am convinced that to plow beneath the wonted depth, would, under the singular circumstances of the Norfolk soil, be injudicious management;—unless some ready method could be hit upon of forming, at a greater depth, a fresh pan.

The methods of plowing are various.—In making fallows, the prevailing practice of plowing fleet and “full pitch,” alternately, is very judicious: it not only breaks and mixes the soil more readily than the common practice of plowing always the same, or nearly the same depth; but, in the first two plowings, it renders the operations more easy: the first, being thin, goes lighter off the share; and the second being always (except for turneps) a cross-plowing, the share has fresh firm ground to lay hold of, by which means the plow is kept steady to its work.

To increase this advantage it is common, on very thin soils, to break up fallows by “rice-balking,” or by “slob-furrowing;” which are
nearly

nearly the same operation performed in different ways.

In rice-balking, the "flag"* is always turned toward the unplowed ground, the edge of the coulter passing close to the edge of the flag last turned: whereas, in flob-furrowing, the flag is turned toward the plowed ground, the coulter passing fifteen or sixteen inches from the last plow-furrow;—into which, in this case, the edge of the flag hangs;—and, in both cases, a slip of unplowed foil, of a width nearly equal to that of the flag, is buried.

These methods of plowing are not peculiar to Norfolk; but I know no District in which they are so commonly practised by farmers in general as they are in this county. The first is most in use: it is the neater, and, perhaps for the Norfolk foil, the more eligible operation.

Another method of plowing practised in Norfolk, but not peculiar to it, is "two-furrowing:"—trench plowing—double plowing. This is done with two plows, one following the other in the same place: it is, in the shallow foil of this District, a difficult operation; but the wheels and the broad share of the Norfolk plow render it singularly well adapted to this

* The provincial term for the furrow turned.

business. The soil, perhaps not more than four or five inches deep, is to be divided into two thin slices, the under one being to be taken up thick enough to bury the first, without bringing up at the same time any part of the substratum or pan : and this I have seen done with great exactness.

The price of plowing, with a plain, clean furrow, is two shillings and sixpence an acre ! which is the current price of the country, and the rate which is, I believe, almost invariably adopted by referees between out-going and in-coming tenants. This interesting fact alone, accounts for the comparative high price of land in Norfolk. In many parts of the kingdom, ten shillings an acre is a price of plowing, equally current. How much, then, it behoves gentlemen of landed property to introduce upon their estates the practice of PLOWING WITH TWO HORSES, AND GOING TWO JOURNIES A DAY,—where it is practicable ; and where it is not, to endeavour, by other means, TO LOWER THE EXPENCE OF PLOWING ; and thus by introducing a real improvement, add a permanent increase to their rent-rolls.

II. HARROWING.—In making fallows, it is customary to harrow presently before each plowing ;

ing; the operation being too frequently deferred so long, that the seeds of weeds, set at liberty by the harrows, have not time to vegetate, before they are again turned under the soil, and placed out of the sphere of vegetation.

This injudicious management is not however universal; good farmers making a point of letting their fallows lie a sufficient length of time between the harrowing and the succeeding stirring.

One admirable practice peculiar, I believe, to Norfolk, is that of making the horses trot at harrow: it being a custom which is prevalent throughout almost every department of this operation, to walk the horses against the rise, if any, and trot them back again in the same place. This excellent practice not only rids work and disengages the root weeds from the harrow tines, as well as from the soil, leaving them loose on the surface; but levels the land, in a manner which would be difficult to describe, and which observation, alone, can render evident.

The day's work of a pair of horses, walking one way and trotting the other, the harrows overlapping so as to give the ground a full double tine, is laid at about seven acres.

III. ROLLING.

III. ROLLING.—Very little general matter falls under this head. One circumstance, however, requires to be mentioned.

The roller, notwithstanding the lightness of the soil, and its proneness to be injured by dry weather, is never used in Norfolk for the purpose of compression. I never saw one used by a farmer either upon fallow or upon a lay; not even upon the first year of a clover lay to smooth the surface for the sith.

The only uses to which I have seen a roller put, in this District, are that of smoothing the surface before sowing, to prevent the seed from running down too low, and that of smoothing it afterwards as a preparation for the sith*: and even *this* operation is performed with a roller not more perhaps than seven or eight inches in diameter! a circumstance which I confess I am no way able to account for: nevertheless, it would be rashness to condemn an established practice, unless I could, from my own experience, or from adequate observation on the experience of others, prove it to be ineligible.

* And sometimes wheat is rolled in autumn. See WHEAT.

I cannot, however, refrain in this instance from recommending to the Norfolk husbandmen to try, by accurate and repeated experiments, whether the rolling of fallows, lays, corn-crops, and meadows, with a heavy roller, would, or would not, be eligible management, on the Norfolk soil.

IV. CLEANSING PLOWLAND.—The Norfolk method of cleaning fallows from “quicks” and other root weeds, is, when they are disengaged from the soil, to draw them into “ringes”—rows—with the same harrows with which they were disengaged (neither horse nor hand-rakes being ever used in the operation). In this case, the horses, walking slowly, are driven with reins, the driver following the harrows, and lifting them up, at stated distances. The “quicks” are then shook into heaps with forks, and either burnt in the close, or carried off to digest in large heaps, as the weather suits, or the judgment of the farmer may determine.

If it be right, in making a fallow, to burn or carry off the roots of couch or other grasses, this is perhaps as simple a process as can be used for the purpose.

It

It is a general idea that marl helps to cleanse the soil from quicks.

V. LAYING-UP FLOWLAND.—For wheat, the soil is usually gathered up into very narrow ridges : but for every other crop it is laid into wide flat “warps,” or beds of about ten paces wide ; without any regard being had to the nature of the subsoil : which, notwithstanding it is, in general, sufficiently absorbent to admit of this practice, is sometimes too retentive, and cold, to admit of it with propriety.

This kind of land, however, seldom occurs in Norfolk ; and this circumstance may be a good reason why a Norfolk farmer is so truly helpless on a wet cold-bottomed soil * ; and may account, in some measure, for his generally failing in his attempts to farm on any other soil than that of his own country.

The idea of gathering the soil into ridges, and sinking cross furrows for the purpose of getting rid of the surface water, is unknown to him : if the subsoil is not thirsty enough to drink up the rain water as fast as it falls, it lies upon the warps, or makes its way across them in a channel of its own.

* For a striking instance, see MIN. 114.

This, however, even supposing the practice to be without exceptions, is no heavy charge against the Norfolk husbandmen, considered merely as such ; for the Norfolk soil in general is sufficiently absorbent to require neither ridge nor furrow.

But there are patches, especially on the sides of the swells, and on the margins of the meadows, which are too retentive to admit of such management ; and there are *some few* husbandmen, who are sufficiently attentive to surface-drains for carrying off the superfluous rain water ; or, if that be found insufficient, have recourse to

VI. UNDERDRAINING.—This, however, is a practice which is not of long standing in the District ; but may, I make no doubt, be found highly useful to many parts of it.

Underdraining has, hitherto, been chiefly, I believe, done with wood ; there being no stones in the District ; except a few small flints gathered off the land ; and except sea stones upon the coast ;—either of which would, if properly used, be preferable to wood.

For

For an instance, and the method, of under-draining with wood, see MIN. 2.

For a particular foil process for barley and turneps, on a very thin light foil, see MIN. 57.

For an evidence of the excellency of the Norfolk foil process, see MIN. 98.

For an instance of injudicious management of a wet foil, see MIN. 114.

For further observations on FALLOWS, see the heads BUCK, TURNEPS, BARLEY, WHEAT.

21.

MANURE PROCESS.

THE PRINCIPAL MANURES set on upon the lands of this District appear, in page 15, to be,

1. Marl, clays, and other earths.
2. Dung, and composts formed with it.
3. Lime.
4. Soot.
5. Rapecake;
6. Malt dust.

I. MARLING. Marl has been so long in use in *this* District, that there are few farms without marl pits upon, or near them; so that *searching for marl* is at present seldom requisite, and the art of discovering it not much studied. The herb coltsfoot (*tussilago farfara*) abounding on the soil, is considered as an indication of a jam of marl being situated near the surface. But, whether this is, or is not, an infallible guide,—time and accidents or intentional researches have not failed to discover
beds

beds of marl in almost every estate, and, in some places, on almost every farm, situated sufficiently near the surface to be worked with advantage.

Of the *quality of marls*, as has been already observed, the Norfolk farmers are, in a great measure, uninformed. That which falls most readily, and “ gets to work ” the soonest, is in the best esteem ; but, in general, the quantity of “ uncallow ” (namely, the coping, or covering of earth, which lies upon the head, or jam) is more attended to than the intrinsic quality of the marl.

The *depth of uncallow* is generally very unequal : perhaps, on the same jam of marl it will vary from one or two, to six or eight, feet deep, the surface of the jam usually rising into inequalities, termed heads.

The *depth of the jam* is equally uncertain : I have seen one worked twenty feet deep ; but in general, I believe, ten or twelve feet may be reckoned a middling depth.

The *bottom of the jam*, being generally a white absorbent sand, no pump or artificial drain is requisite to free a Norfolk marl pit from water, which no sooner touches the sand

than it vanishes, as through the grate of an open drain.

In *working a marl pit*, the top soil is thrown back for manure—the remainder of the uncallow thrown to the bottom of the pit, and levelled for the carts to stand upon. When the jam is low, the marl is thrown immediately from it into the carts; but if it be too high for this operation, piles are driven in a row a few feet from the face of the jam; and, as soon as a crack is formed, water is poured into it, more especially when the marl is dry and stubborn; and by this means many loads are thrown down at once; either to the bottom of the pit, or to a platform, level with the body of the cart; into which the marl, in this case, is thrown with great ease. Taking up the bottom of the jam is the most difficult part of the operation; the marl being first to be cast upward to the base of the pit, and afterwards to be thrown into the carts. But by thus bringing up the bottom, two valuable things are obtained;—a drain for the water, and a most convenient receptacle for the next line of uncallow.

The .

The *labour* bestowed on marl previous to its being put into the cart, whether it be incurred by throwing down, loosening by pecks, crows, &c. or fetching up the bottom, is termed "casting"—the act of throwing it into the cart being called "filling."—The price of casting is threepence to sixpence a load, according to the circumstances of the pit (the uncallowing being generally done by the day); and the price for filling twopence to twopence halfpenny, according to the size of the loads carried. I have known threepence a load given for filling and spreading large loads: the price of spreading, alone, is about one shilling an acre. The number of loads carried out in a day by one team, varies, of course, with the distance to be carried: when the pit happens to lie in or contiguous to the ground to be marled, thirty loads have been carried;—but five-and-twenty is, I believe, considered as a good day's work.

The *quantity* set upon an acre is equally various; depending upon two things:—upon the judgement of the person who marls; and upon whether the land has, or has not, been marled heretofore.

It

It is known, from common experience, that land which has been recently marked receives no apparent benefit from a second dressing of the same manure : but it is equally well known that, after some length of time has elapsed, a repetition of marling will generally answer.

It is a notion, pretty generally adopted, that, in this case, the quantity ought to be greater than it was the first or preceding time : and it being formerly the practice to set on a great quantity at once,—seldom, perhaps, less than forty loads an acre,—this notion has, probably, deterred many persons from doing that which would have been serviceable to themselves and their country.

But there is not, I believe, any general rule known, respecting either time or quantity : I have had frequent opportunities of making observations on a farm which affords a striking instance on this subject. Two or three different tenants had failed successively on this farm ; though by no means high rented. The greatest part of it had, within the memory of man, been marled with not less, in all human probability, than forty loads an acre ; and the tenants who failed despaired of reaping any benefit from a second marling after so short

an interval of time ; but this farm falling into the hands of a more judicious tenant, he has, by marling, (and by other acts of good management) accumulated, in little more than twenty years, a farmer's fortune ; during which time he has marled upwards of one hundred acres ; and, has found, from long experience, that twenty-five loads an acre is, notwithstanding the recent marling, a sufficient quantity,

I do not mean to intimate that the same management would every where produce the same effect ; but I will venture to say, that no man having marl upon his premises, ought to neglect to try its effect, by accurate and repeated experiments, upon every piece of land in his possession,—without being led away by any received notion,—or general rule.

The quantity set on, upon land which is not known to have been marled, or out of which the marl is worn, is, at present, less than formerly.

In the southern Hundreds, to which marl is obliged to be fetched a great distance, ten or twelve loads are considered as a dressing ; six or eight are frequently set on.

In the more central and northern parts of the District, where marl is common on almost
every

every farm, twenty to thirty loads an acre are generally allowed,—and sometimes forty loads.

When it is known, from experience, or taken for granted without proof, that land, either through a recent marling or other cause, is not improveable by marl alone, a small quantity is frequently mixed up with dung; either by bottoming the farm yard, or the muck-heaps, with it; or by mixing it layer for layer with the dung in the heaps. In either case, they are afterward turned up, and thereby mixed more intimately together.—With this preparation, marl has been found to answer, where, in its natural state, it had no effect.

The symptom, or indication, of a piece of land requiring to be marled, is taken from the plants which prevail upon it.—“Buddle” (*chrysanthemum segetum*—corn marigold) is considered as a certain intimation that the land it abounds upon requires to be marled.—“Smartweed” (*polygonum Pennsylvanicum*—pale-flowered persicaria) is likewise an observable symptom. It is, I believe, an undoubted fact, that marl, in a manner, extirpates these plants from the soil;—and that “quicks” (*triticum repens*) are considerably checked by it.

With

With respect to the *crop*, for which marl is set on, there is no general rule : it is sometimes set on for turneps, sometimes for barley, and frequently upon the second year's lay for wheat; which last is, perhaps, the best management.

The *expence of marling* varies with the quantity set on, the distance to be carried, and the state of the pit.—Suppose twenty-five loads an acre to be set on, the distance from a quarter to half a mile, and the expence of casting three-pence a load; and that a team draws out and sets on the twenty-five loads in two days :

25 loads, at 6 <i>d.</i> for casting, filling, <i>£.</i> <i>s.</i> <i>d.</i>	
and spreading	0 12 6
Two days work of a team, at 10 <i>s.</i>	1 0 0
Uncallowing, and extra wear and	
tear of implements and tools	0 7 6
	<i>£.</i> 2 0 0

II. DUNGING. *The method of raising dung* upon the premises will appear under FARM-YARD MANAGEMENT.

The *application* of dung is, in the ordinary practice of the District, to the TURNIP and the WHEAT crops.

For

For TURNEPS, the "stable muck" is usually carried out, from time to time, as it accumulates, or as the weather answers, in winter; and the "par muck," wanted for this crop, early in the spring; and piled up in heaps in or near the intended turnep closes; a bottom being previously formed of marl, or "manner," about a foot thick, and neated up into a long-square bed to set the pile upon.

The method of carrying out farm-yard dung, "when a farmer wants to get business forward," is generally this: Two fillers, a driver, and an unloader, with six horses and three carts, are a set, for a short distance: one of the carts being always in the yard—one on the road—and one at the dung-heap; it being a universal practice, which prevails throughout the District, to set the carts by the side of the heap and unload them with forks.

The crime of drawing the load upon the heap is rarely committed in Norfolk. On the contrary, every lump is carefully broken, and the whole piled up light and even, with almost as much care and attention as farmers, in some places, bestow upon their hayricks.

The

The ordinary day's work of the set above-mentioned is twenty-five loads; if the distance be very short, thirty loads are frequently carried out: in this case, however, an additional boy is required to assist in levelling and forming the heap.

The filling is generally done by the load;—another admirable practice: the price one penny a load; a striking instance of the low wages and hard work of this country.

This practice ought to be copied in every country; for it would, in most places, be cheaper to pay even threepence a load, than to have the dung cart filled by the day; in which case, the team is ever standing idle until the load be made up: whereas, when the filling is done by the load, that seldom happens. This accounts sufficiently for the extraordinary number of loads carried in a day, in Norfolk.

For WHEAT, the remainder of the par-yard muck is generally, in the spring, after the cattle are turned out to grafs, turned up into piles in the yards, where it remains until the soil be prepared to receive it;—the piles being, by good farmers, re-turned in the summer;

mer; an operation, however, which is too frequently neglected.

Or, instead of turning the piles in the yard, they are sometimes carried, at leisure times in summer, on to the land, and there piled afresh: in either case, the compost, by the time it be wanted to be set on, is thoroughly mixed and digested.

The method of setting on dung is similar to that of carrying it out: and from twenty-five to thirty loads are considered as a day's work for one team and two fillers: all set on in hillocks.

The *quantity* set upon an acre is, of course, proportioned to the quantity of land to be manured, and the quantity of dung to be set on: ten loads of good spit dung, or twelve to fifteen loads of compost, is, perhaps, the *medial* quantity set upon an acre, for *turneps*:—for *wheat* a smaller quantity, and generally of a worse quality, is usually allowed.

Some few farmers manure their *clover* lays, but this is by no means common; the application of dung being, as has been said, in a manner wholly to the turnep and wheat crops.

It may also be said, in general terms, that all the dung spread upon this District is *plowed*
in;

in: WHEAT is sometimes *top-dressed* with it; but I have met with few instances of that species of management.

III. LIMING. It has already been observed under BUILDINGS AND REPAIRS, page 91. that the lime of this District is burnt entirely from marl, with sea coal, in drawing kilns: at least I never observed a standing kiln *.

The price varies, in a small degree, in different parts of the District: nine shillings a chaldron of thirtytwo bushels is a medium price. See note, page 91.

Lime, however, cannot, as has been before observed, be considered as a common manure in this District; and while men will continue to draw general conclusions, from particular incidents or experiments, in matters of agriculture, more especially on the effects of this mysterious manure, they will ever be of different opinions. Until the operation of lime upon soils, and vegetables, be better known than it is at present, it is in vain to *reason* about it.

* Namely, a kiln which is filled, and burnt out, without drawing off any of the lime while burning.

If, by accurate and repeated experiments, a given lime be found to have no profitable effect upon a given soil, it would be absurd to continue to lay that particular lime upon that particular soil. On the contrary, if, by a similar course of experiments, a given lime be found to act profitably upon a given soil, it would be equally absurd to let any *argument*, howsoever plausible, prevent a man from reaping the advantage which so fortunate a circumstance has thrown in his way.

There may be soils in Norfolk upon which the Norfolk lime would have no beneficial effect; but that there are some upon which it has a beneficial effect, I am certain; not only from my own experience, but from the practice of some of the best farmers in the District; and this, too, upon lands which have been heretofore marled.

If by lime, or any other fossil or extraneous manure, a Norfolk farmer could secure a crop of wheat without dung, the advantage would be very great. The whole system of the Norfolk management hinges on the turnep crop ; and this depends, in a great measure, on the quantity of dung. No dung,—no turneps,—no bullocks,—

bullocks,—no barley,—no clover,—nor teathe upon the second year's lay for wheat.

How much then it behoves the Norfolk husbandmen, and turnep farmers in general, to treasure up dung for the turnep crop. The loss of a crop of wheat is only a single loss, and its effects momentary and certain ; whereas the loss of the turnep crop deranges the whole farm, and its effects may be felt to the end of a lease.

If it be found, from adequate experience, that lime is insufficient to answer the desired purpose ; and if it be found necessary to right management that a certain quantity of wheat should be every year grown ; other factitious or extraneous manures might, by a continued search and a proper spirit of industry, be obtained.

The general *method of applying* lime is to let it fall in large heaps, and to spread it out of carts upon fallowed ground, either for wheat or for barley.

The quantity usually set on—about three chaldrons an acre.

IV. SOWING SOOT. Near towns soot is used as a topdressing for wheat, in February or March.

The time of sowing is considered as very material. If it be sown early, and the frost catch it, its strength is thereby lowered: if late, and no rain falls to wash it in, it is thought to be rather injurious than beneficial to the crop of wheat. And it is not, in any case, found of much, if any, service to the succeeding crop of barley.

The method of sowing it is extremely simple; and, in the only instance I saw the sowing of foot practised, here, was very complete.

A favourable opportunity being embraced, when the wind blew gently, and in the same direction, or nearly in the same direction, as the lands or ridges lie,—the waggon which brought it from Norwich, and which, until the opportunity offered, had stood safe under cover, was drawn, in a furrow, against the wind; while a man, standing on the outside of the waggon, spread the foot, with a shovel, several yards wide, on either side of him; the height of his situation at once enabling him to spread it wide, and even. As he reached the windward end of the lands, the team wheeled round under the hedges, and took a fresh width.

The

The quantity set on was forty bushels an acre.

V. MANURING WITH RAPECAKE.—Rape-cake is not a common manure in *this* District: but it is used by some very good husbandmen, towards the north coast: particularly by the judicious manager mentioned, in this section, under the article MARLING*; who has not only marled one hundred acres of land, which men of less judgment than himself considered as unimprovable by marl; but has, in the course of about twenty years, laid out eight hundred pounds in rapecake: and his success is a striking evidence in favour of the doctrine above held forth; namely, that of applying the dung wholly to the turnep crop, and dressing for wheat with some other manure.

He fetches the cake seven or eight miles, from Cromer or Blakeney; where it costs him from forty shillings to three pounds a ton; with which he dresses three acres. Being previously ground, or broken into small pieces, it is sown, by hand, out of a common seedbox, upon the last plowing but one of a summer fallow, for wheat.

* Mr. Edmund Bird, of Plumstead.

VI. MALTDUST.—This is the most general adventitious manure of the District; every malt-house furnishing more or less of it; but the quantity, even upon the whole, being small, it can only be of advantage to a few individuals.

For observations on marling, in South-Walsham Hundred, see MIN. 55.

For a proposed melioration of the soil by an improvement in the soil process, see MIN. 77.

For observations on "claying," in Fleg, see MIN. 106.

For experiment on the time of manuring grassland, see MIN. 127.

For the expence of marling by means of water carriage, see MIN. 136.

22.

THE SEED PROCESS.

I. BROADCAST may be said to be the only method of sowing in this District :—and the plow (with some few exceptions) the only implement used in covering the seed.

II. DRILLING, notwithstanding the soil is so peculiarly adapted to this operation, is entirely unpractised. The only exception to random-sowing is,

III. DIBBLING—provincially, “dabbing.”—It is performed in two ways; namely, by hand dibbles, and by *dibbling rollers*: the latter however being in the hands of very few, and being, I believe, used for wheat only, they will be mentioned more particularly under that article. But *hand dibbles* are used for peas as well as for wheat. Indeed, in this District, they are more in use for the former

than for the latter; the dibbling of which cannot be said to have yet gained a footing in it: nor, perhaps, are the shallow soils of *this* part of the District adapted to the practice, how excellent soever it may be upon deeper richer soils. Nevertheless, the practice being peculiar to Norfolk, (and the part of Suffolk adjoining to Norfolk) I embraced every opportunity of gaining what information I could respecting it, and was singularly successful in my enquiries; the results of which appearing fully in Minutes made at the time of enquiry, I forbear saying any thing further upon the subject in this place.

IV. STATE OF THE SOIL.—The husbandmen of Norfolk, notwithstanding the natural dryness and lightness of their soil, are particularly careful not to sow spring crops when the soil is what they call “cold and heavy.”—When they are under the necessity of sowing under this predicament, they endeavour to sow above and harrow in the seeds;—whereas, if the season be tolerable, it is a prevailing practice to plow-in almost all kinds of grain. When the soil is seen to smoke after a shower at sunrise,

rise, it is considered to be in a desirable state for fermentation.

For the result of experiments with Mr. Duckett's Drill, see MIN. 19.

For observations on dibbling, see MIN. 23, 26, 28.

For reflections on regulating the time of sowing by the *season* rather than by the *sun*, see MIN. 125.

23.

VEGETATING PROCESS.

I. IT HAS already been observed, that ROLLING crops is seldom practised in this country; unless to smoothe the surface, in a slight degree, as a preparation for the sith.

II. HOING is still less in practice; except for TURNEPS, and sometimes for the furrows of WHEAT,

III. HANDWEEDING is, however, carefully attended to by farmers in general; and is, generally, performed by the acre:—a practice I have not met with elsewhere; though most eligible to be adopted in every District: a farmer has not a more disagreeable task than that of attending to weeders by the day. The price is, of course, proportioned to the foulness of the crop to be weeded:—from sixpence to five shillings an acre is given.

IV.

IV. STONEPICKING clover-lay is also generally done by the acre :—the price twopence to threepence an acre ; the quantity of stones being in general small ;

V. The method of frightening rooks, in practice here, especially when they take to patches of corn which are lodged before harvest, is simply to stick up a tall bough in the part infested : if a gun be fired near the place, before the bough be set up, this simple expedient seldom fails of being effectual.

If rooks make an attack after seedtime, or when they take, generally, to the crop before harvest, a boy is set to scare them ; they being seldom attempted to be shot at in Norfolk ; where a notion prevails, and is perhaps well founded, that rooks are essentially useful to the farmer, in picking up worms and grubs ; especially the grub of the cock-chaffer, which, it is believed, is frequently injurious to the meadows and marshes of this country,

VI. But whether rooks are, or are not, upon the whole, hurtful to the farmer, there are, in Norfolk, three species of animals, which, on a certainty,

certainly, are injurious to him: these are HARES, PHEASANTS, and SPARROWS: the last of which are not less disgraceful to the farmers themselves, than the two former are to their landlords; and it would be very difficult to say, which of the three would, to a well wisher to husbandry, and a stranger in the country, appear the most disgusting sight. I confess, that having preconceived some idea of the mischiefs that must necessarily arise from an inordinate quantity of game, the clouds of sparrows which are suffered to prey upon the produce of this country, were to me the greater cause of surprise.

But shameful as is the waste arising from sparrows, it is inconsiderable, when compared with the devastation which is caused by hares and pheasants, *in the neighbourhoods of kept covers.*

THE TURNIP CROP, the main stem of the Norfolk husbandry, falls a sacrifice to hares.—The quantity they *eat* is considerable, but small in comparison with the *waste* they create. Before a hare will make her meal off turneps, she will taste, perhaps, ten, without meeting with one to her tooth. Her method of tasting,
is

is to peel off a piece of rind, about the size of a shilling, upon the top of the turnep; in order that she may, with nicer judgment, make her essay upon the pulp: in doing this, a receptacle is formed for the rain, and a wound of course made for the frost to operate upon: the part presently becomes putrid; in a few weeks a general mortification takes place; and the turnep thus partially bitten, is, as a *food*, entirely lost to the farmer, and to the community.

THE WHEAT CROP suffers principally from *pheasants*: they begin with it the moment it is sown, and prey upon it so long as it remains in the field; frequently follow it into the rick-yard; and, in severe weather, into the barn-yard: nay, I have known them, not satisfied with robbing the pigs and poultry, make their entry into the barn itself; where they have been found, by the farmer or his labourers, feeding in numbers upon the barn floor. These depredations are not confined to wheat; but are of course extended to other crops.

THE BARLEY CROP suffers principally from *bears*; but upon this their mischiefs are not so general as upon the turnep-crop. So long as the barley keeps young and succulent, they feed

seed promiscuously; but when it begins to run up to stem, they confine themselves (if the piece be too large to keep the whole of it under) to particular parts; which, by being kept continually cropt as it shoots, affords them a fresh bite through the summer; so that towards the time of harvest, when the crop begins to change, patches of half an acre or an acre, still in a grassy state, become conspicuously scattered over the piece.

Whether the crop be of barley or of wheat, it receives, throughout, material injury by the *tracks* made across it.

CLOVER, also, receives injury from *bares*, by the young heads being eaten down to the crown in winter, and by the crop being checked in the spring; thereby suffering the drought to get possession of the soil. But the clover crop receives still greater injury from *pheasants*; which are not content with the foliage, but feed on the vitals of the plant; pecking out its "heart," as it is emphatically called: namely, the center of the crown of the root.

It is, indeed, an opinion among farmers, who are unfortunately fixed near kept covers,
that

that the pheasants do more injury to their clovers, than they do either to their turneps or their barley; or, some are of opinion, even to the wheat crop; for the loss of the clover by pheasants, deranges their farm in a similar, though not in so sensible a manner, as the loss of their turneps by hares; whereas the loss of the wheat, though great in the first instance, is less injurious in its consequences.

To a person who has not been eyewitness to the destruction which accompanies an inordinate quantity of game, the quantity of damage is in a manner inconceivable.

Let us suppose that a suite of kept covers give protection to five hundred brace of hares: one hundred and fifty brace, it is confidently asserted, have been counted, at one time, on one side of a single cover. I have myself seen from fifty to an hundred brace under the eye at once.

Let us further suppose that five hares devour, or destroy, as much food as one of the small heath sheep of this country: this, if we may depend on an accurate experiment made on the quantity of turnep eaten by one of these
gluttonous

gluttonous animals in a state of confinement, is, as the former, a reasonable supposition.

Any man, conversant in rural affairs, can form some idea of the havock which two hundred wild heath sheep, turned loose into a fenceless corn country, must necessarily make among the crops. But if, in addition to these, a thousand head of poultry were at the same time let loose, it would be no difficult matter for any man to conceive a pretty strong idea of the consequences.

From what I have myself seen, and from what I learnt from those whom woful experience has taught, I am led to believe, that there are not less than one thousand acres of turneps, one thousand acres of clover, one thousand acres of barley, and one thousand acres of wheat, annually destroyed, or materially injured, in this county, by hares and pheasants.

My calculation is this:—Norfolk contains, as nearly as this calculation requires, one million acres of land. Suppose that half the country consists of marshes, meadows, sheep walks, and other grasslands, heaths, commons, wood-lands,

lands, roads, and hedgerows, there remains five hundred thousand acres of arable land.

This however is, I believe, too small a proportion; we will therefore, to ease the calculation, and to render it, perhaps, more accurate, estimate the quantity of arable land at six hundred thousand acres; which being divided agreeably to the course of husbandry most prevalent throughout the county, affords, annually, one hundred thousand acres of wheat, two hundred thousand acres of barley, one hundred thousand acres of clover, and from fifty to one hundred thousand acres of turneps.

I am clearly of opinion, that a quantity equal to one acre in a hundred acres of wheat, to one acre in two hundred of barley, to one acre in a hundred acres of clover, and to more than one acre in a hundred acres of turneps, is wholly destroyed or irreparably injured by hares and pheasants.

I do not mean that a thousand distinct acres of any of these crops can be picked out; but that there is, upon the whole, a destruction adequate to the produce, on a par, of a thousand acres.

1000 acres of wheat, worth on	£.	s.	d.
a par of crops, in a par of years,			
6l.	6,000	0	0
1000 acres of barley, at 4l. 10s.	4,500	0	0
1000 acres of clover, and the			
consequential damages	5,000	0	0
750 acres of turneps, and the			
consequential damages, at 10l.	7,500	0	0
	£.	23,000	0 0

If we view this inordinate quantity of game in a moral light, its evil consequences, whether we consider them in a private or a public view, are still greater.

There are an hundred, perhaps five hundred, men in this county whose principal dependence, for their own and their family's support, is on poaching. The coaltrade and fisheries are not more certain nurseries of seamen than kept covers are of poachers. An excessive quantity of game is not more certainly destructive of the crops they have access to, than it is inevitably productive of idleness and dishonesty among the laborers of the neighbourhood. Two or three shillings for a pheasant, the usual price, I understand, given by the wholesale dealers

dealers in Norwich, is a temptation, to a man who is not strictly honest and industrious, too powerful to be withstood.

For a while he goes on in security : but his ways and his haunts being at length discovered, he is taken ; and, if not knocked on the head in his scuffle with the keepers, sent to gaol.

Having lain here his wonted time, he sallies forth again, not only a more desperate poacher, but an incorrigible rogue, fit for any thing.

Having been two or three times taken, and having lain upon the whole, perhaps, twelve months in gaol ; having learnt to live by night, and to idle and sleep away the day ; he cannot reverse his way of life ; and he is become too notorious to carry on, any longer, his trade of poaching.

His case now becomes desperate ; and if he is not fortunate enough to get into a gang of smugglers, he takes, of course, to house-breaking, or some other highway to the gallows.

Nor is this the sum of mischief :—A gentleman who preserves an inordinate quantity of game upon his estate, is, in the nature of things, perpetually in hot water, with the yeomanry and

minor gentlemen of his neighbourhood. And for what advantage? A mere childish gratification—a toy.—The child has its bird of pith, the schoolboy his daws and magpies, ladies their aviaries, and gentlemen their kept covers;—merely for the sake of shewing off the pretty creatures; or of saying that they have got them in their possession.

In point of real diversion, kept covers are utter enemies. What hounds can hunt in covers with a thousand hares in them? And the diversion of shooting pheasants in a kept cover, is just equivalent to that of shooting small-birds in a rickyard, or poultry at a barndoor.

These observations do not arise from an antipathy to rural diversions, nor, I flatter myself, from an overweening fondness for rural economy. I have professed myself upon a former occasion, and still profess myself, a friend to both; and as such I beg leave to intimate to gentlemen of large estates, that if, instead of laying waste the lands immediately round their residences, they would scatter small covers over different parts of their estates; more especially by the sides of rivulets in which water-creffes abound; and if, instead of employing in the
shooting-

shooting-season half-a-dozen keepers night and day, at a great expence to themselves, and to the certain injury of the health of those whom they employ, in this hazardous and disgraceful business, they would permit such of their tenants, as chose to take out licences, to sport upon their respective farms, and the unprotected farms in their neighbourhoods; I am clearly of opinion, I am positive, they would have a sufficiency of game, an increase of diversion, an increase of income, and, what is of much more value to a man whom fortune has placed above dependency, an increase of respectability and personal happiness.

To say that the game laws are disgraceful to the laws of this country, would only be repeating what has been said a hundred times, and by the first characters in it; nevertheless, they still remain an absurdity in English jurisprudence*.

* At present, a merchant or monied man, let him be worth an hundred thousand pounds, and let him have an hundred men of landed property ready to give him permission to sport over their estates and manors, he cannot do it without being guilty of a breach of the laws of his country. Nay, this man, nor any man, though he be possessed of the clear fee-simple of a landed estate of 99l. a year, remains in the same predicament. Whilst another

N 3

man,

The legislature having lately thought fit to make rural diversions an object of taxation, it might now be impolitic to make game altogether what it ought to be—private property. Nevertheless it still strikes me, as it did long before the licences for sporting were instituted, that game might be rendered a public and private good.

Wherever personal property is ascertained, there, also, let a private property in game take place; the property being invested in the proprietor of the land, not in the occupier of it; and let every proprietor, great or small, have a full and uncontrollable right to the game he can *find* upon his estate.

But the moment he steps off his own land, whether onto the private property of another, or into a forest or mixed property, though full permission be first had from the proprietor or keeper, let him become liable to fine or imprisonment; provided he do not annually pay, towards the support of the state, five guineas, or some greater sum.

man, perhaps not worth a shilling, but because he has in his possession an estate of one hundred a year, though mortgaged for twice its value, is entitled to the privilege of ranging with impunity.

Let

Let this five guineas, or greater sum, qualify him fully to sport on forests, wastes, and all undivided property, *without leave* from any person whatever; as well as to sport, *with permission*, over any man's private estate.

But, notwithstanding his qualification, let him, for starting game, without permission, upon private property, *with intent to kill*, be guilty of an act of larceny or felony, and, as a larcenor or felon, let him be punished by the ordinary laws of his country.

Objections might be raised to this plan; but not one, I will venture to say, which might not readily be obviated.

24.

HARVEST PROCESS.

THE WHOLE business of harvest is done by harvestmen; no part of it, generally speaking, being done by the acre.

The price of a harvestman is thirtyfive to forty shillings for the harvest, be it long or short, with his full board so long as harvest work continues.

This is, in any year, a disagreeable circumstance; and, in a long harvest, extremely tedious: in the backward harvest of 1782 some farmers boarded their harvestmen seven weeks, two or three of which, perhaps, they lay in a great measure idle.

What renders the expence excessive, is not altogether the number of appetites to be palled, but the extravagant manner in which they are, by custom, expected to be gratified. In liquor, however, the Norfolk labourers are less wasteful than are the labourers of some other places.

The

The disagreeableness of boarding apart (and this might no doubt be avoided), the business of harvest goes off with singular alacrity in Norfolk. Every man turns his hand to any work which is going forward, To whatever requires the quickest dispatch, whether it be reaping, mowing, cocking or carrying, a farmer can direct his whole force; or such part of it as he may judge necessary: an advantage which cannot be had when reaping and mowing are done by the acre; the reapers, more especially, being as useless to a farmer in this respect, as if they were not employed upon his farm.

What adds essentially to the dispatch, and consequently to the pleasure, of harvest, is the comparative alertness and activity of the Norfolk harvestmen; who, from four in the morning until dark, their meal-times excepted, work, not as for their masters, but as for themselves.

While, however, I thus pay due praise to the labouriousness of the Norfolk workmen, truth obliges me to say, that in many instances their work is done in a loose, and, what in some places would be called, a slovenly manner.

But

But this is a natural, or at least a usual, consequence of dispatch. A man who reaps, for instance, from half to three quarters of an acre a day, cannot be expected to do his work so neatly, to lay his corn so straight, and bind his sheaves so tightly, as he who only reaps one third of an acre.

Were it not for this extraordinary dispatch, I do not see how the crops of the District could be harvested. There are, it is true, a few men, from Suffolk, Cambridgeshire, &c. hired annually at Norwich, and retained for the harvest; but their number is inconsiderable, compared with the numbers which are employed in other arable countries; where they pass from place to place, as the harvest ripens: whereas here they are at the end of their journey: an extensive tract of arable country on one side, and the sea on the other. The best resource which this country has is in its numerous manufacturers, some few of whom can, in necessity, turn their hands to harvest-work.

One custom of this country respecting harvestmen is very reprehensible. Their work is considered to be merely that of *harvesting*; and,

and, if the weather be such that this does not afford them full employment, they consider themselves as having, from ancient custom, a right to refuse to do every other kind of work. It is (I am sorry that truth obliges me to relate it) no unusual thing for parties of them to be playing at cards in a barn, while the turnep-crop is receiving irreparable injury for want of their assistance : a crime, in this country, which both master and men ought to be equally ashamed of ; and it certainly would be worth the farmers' while to give their men an advance of harvest wages, rather than to suffer so disgraceful a custom. Were it not for the manufacturers and other handicraftmen, the later-sown crops of turneps would suffer greatly during harvest. Some years, it is true, harvest-men have little leisure for turnep-hoeing ; but, in others, they have a great deal ; and, in every year, a strong morning dew, or a flying shower at the time of carrying, afford apt opportunities for this necessary operation.

The practice of trotting with empty carriages has already been noticed : it is on no occasion more valuable than in harvest ; a custom among farmers of driving their own harvest carriages is not less excellent.

Loose

Loose corn of every kind is universally trodden in the barn with horses; and, what is perhaps singular to Norfolk, horses are sometimes employed in treading large ricks.

Ricks, in general, however, are carried up too narrow and too high to be trodden with horses; their roofs, more particularly, being frequently drawn up to an unnecessary and, indeed, ridiculous height; thereby incurring unnecessary labour in topping-up, and an unnecessary quantity of thatch and thatching.

The price of the last, however, being in a manner fixed at six pence a yard in length, be the roof high or low, deep or shallow, the loss in this falls rather upon the thatcher than the farmer.

For the minutiae of the harvest process, see the several crops:—namely, WHEAT, BARLEY, &c. &c.

25.

FARMYARD MANAGEMENT.

THIS HEAD may be divided into,

1. Barn management ; and
2. Straw-yard management.

I. BARN MANAGEMENT.—Every thing is thrashed by the coomb of four bushels ; little or no thrashing being done by the day *.

It is observable, that notwithstanding the spaciousness of the Norfolk barn-floor, the labourers in general object to their thrashing two in a barn ; rather choosing to work singly :—this, perhaps, is principally owing to the particular method of thrashing with two on a floor ; which is to turn their backs on each other ; working as separately as if they thrashed on separate floors ; the method of standing face to face, and giving stroke for stroke, being seldom, if ever used.

Every thing is thrashed rough ; no straw bound ; even wheat straw is usually shook off the floor, loose, with a common pitching fork.

* For the prices, see LIST OF RATES.

The

The method of dressing corn, here, is singular, and, as an established and invariable practice, is, I believe, peculiar to this country; in which there is not, perhaps, a single *wind fan* of any construction; and I never saw the natural wind made use of in the dressing of corn.

In West Norfolk, there are some sail fans; but, in this District, the invariable practice is to separate the corn from the chaff, by throwing it from one end of the floor toward the other with a shovel.

In this operation, the prime grain, being heaviest, flies farthest; the light corn and "coshes" next: to these succeed the broken ears and prime chaff; and to this the small chaff and dust; which being thrown against a gentle draught of air, when it can be had, is generally carried back pretty plentifully towards the face of the thrower, who usually guards his eyes with a crape or other partial covering.

To avoid the inconveniency of the dust as much as may be, and to separate as clean as possible the corn and chaff from the "colder,"
namely,

namely, the ears, short straws, &c.—the rough corn, after the straw is shook off and raked out in the usual manner, is riddled through a fine riddle upon a horse placed near the leeward door; by which means a principal part of the dust, and, if the draught of wind be strong, much of the worst of the chaff is got rid of. This not only renders the casting more agreeable, but lessens the quantity to be thrown.

The art of throwing is a sleight which can be learned from practice only. A light, hollow wooden shovel is the tool made use of in this operation. This is about half filled with corn; which, to make the cast more true and certain, is shook into the center of the mouth of the shovel. This is done by a single motion, with the arms hanging straight down, as if with an intention to estimate the weight of the corn in the shovel. The equipoise being thus got, the contents are delivered by a sweeping motion of the arms and the body; scattering the grain in a long, narrow heap, of a semilunar form.

The chaff and the light grain being removed, the broken ears and “coshes,” namely,
the

the heavy grains whose chaff sticks to them, are separated by a riddle and the wicker knee-fan.

If the head grain be not sufficiently cleansed by one casting, it is returned in a similar way to the other end of the floor.—Finally, the weed seeds and small corn are separated in the usual manner, by the skreen; and the head grain measured up, in a way as singular as that by which it is separated.

In one part of the kingdom the bushel is filled with a shovel—in another with a shoal—in a third with a sieve; but here no tool whatever is made use of; the bushel itself being thrust into the heap, and then filled up and levelled fit for the striker with the hands alone; under a thorough conviction that corn may be measured lighter in this way than in any other way whatever.

All corn is sent to market in “coomb bags,” and generally with four bushels in each bag.

The *measure* of Norfolk is about eight gallons and a half to the bushel, and twentyone coombs to the last: that is, one coomb, or one bushel, in twenty is thrown in. This custom has probably been introduced by the corn-factors,

tors, under a pretence of loss of measure in sending their corn to market. Be this as it may, the allowance is made to the cornbuyers only: for in dealings between farmer and farmer for seed, &c. the "bare" measure only is given.

It is a practice among Norfolk farmers, as prevalent as it is judicious, not to store up dressed corn; but either to let it remain in the straw, or, if this be wanted, to keep it a few weeks in the chaff, till a fair market offers; frequently stowing it away in a recess cut out of the face of the mow, for this purpose.

II. STRAWYARD MANAGEMENT.—The Norfolk husbandmen are, in general, very attentive to separating their stock in the strawyard. For this purpose their "paryards" are *parted* into sundry divisions with faggots, in the manner already mentioned under the subject REPAIRS.

One division is set apart for the cows—another for the "buds" or yearlings,—sometimes a third for the two-year-olds,—and, when turneps are brought into the yards, a fourth for the bullocks.

By this judicious management the weak is placed out of the power of the strong, and the

colder and best of the straw may be given to such as require the best keep.

Sometimes the straw is given to the cattle in "bins;" sometimes laid in heaps; and frequently for bullocks at turnep, it is scattered loose about the yard.

Upon the whole, the Norfolk farmers may be said to be wasteful of straw; more especially at the beginning of the winter, when it is frequently thrown into the empty yard entirely waste as to fodder: this, however, is not looked upon in so improvident a light in Norfolk as in most other places; for here a notion of the utility of having plenty of straw among dung, prevails so strongly, that the straw which is *eaten* by cattle is considered by some men, as being in a manner wasted as to manure.

For further observations on this subject, see MIN. 73.

26. MARKETS.

26.

M A R K E T S.

NORFOLK, taken collectively, as a county, is singularly well situated for markets: the Norwich manufactory is productive of a regular internal consumption; while Yarmouth, Lynn, the smaller ports, Smithfield and St. Ives, take off the surplus produce.

SMITHFIELD is the grand market for cattle and sheep, and the SEAPORTS for barley.—Wheat is principally bought up by the MILLERS, and the surplus of what is consumed in the country sent to the LONDON MARKET, in flour. Some wheat in grain is also sent to Bear-Key.

With respect to veal, pork, lamb, and sometimes mutton, a singular practice prevails in Norfolk; most especially at the NORWICH market; which is supplied with the above articles entirely by the farmers: who, for fifteen or twenty miles round, are most of them capable of dressing a calf, a lamb, or a sheep;

O 2

which,

which, with poultry made ready for the spit, are carried weekly by themselves, their wives, their daughters, or their servants, to Norwich market: which, whether for plenty or neatness, is, I believe beyond all comparison, the first in the kingdom.

These articles are brought to market in panniers—provincially, “peds”—either on horseback, or in market carts (a convenience which few farmers are not possessed of) and placed in rows in the “ped market;” a spacious triangular area in the center of the city; the market women sitting in a row on one side of the peds, while the other side is left free for their customers.

Whether viewing the neatness of the market women themselves, the delicacy of their wares, or the cleverness which, through habit, many of them are mistresses of in the disposal of them, the Saturday’s market of Norwich exhibits an agreeable sight.

It is not necessary to add to this account of the ped market, that the business of a butcher in Norwich is confined, in a great measure, to beef and a little mutton. Indeed the trade of a butcher is not, in any part of the county, a
good

good one; the principal farmers butchering their own meat; and the smaller ones who kill for the ped markets, living chiefly on the offal and the unfold joints.

The corn market of Norwich is likewise a very good one. But the business being chiefly done at the Inns, is not *seen*. The river Yare, which is navigable from thence to Yarmouth, affords an easy conveyance of the surplus corn bought up, at Norwich, for the London market.

The principal market of *this* District is that of NORTH WALSHAM;—a very good one; great quantities of barley and wheat are bought up weekly, and the surplus of the home consumption either sent down the north river navigation to Yarmouth, and from thence shipped off for the London or other market; or is delivered by land carriage at CROMER or MUNSLEY, and there shipped off.

When the ports are open for exportation, great quantities of corn are sent immediately from Norfolk to HOLLAND, and other FOREIGN MARKETS.

One general observation remains to be made respecting the markets of Norfolk: they are

in general AFTERNOON MARKETS; no business being done, in the corn market at least, until three or four o'clock in the afternoon. The market of Norwich is, however, an exception to this custom, and there may be other forenoon markets in the county.

Many conveniencies and advantages accrue to the farmer from afternoon markets: he has all the morning to himself: he dines with his family; and sees his men at work, and his teams out for their afternoon journey, before he sets off for market. His market expences are curtailed, and a habit of lounging out a whole day, idly, prevented. The only inconveniency incurred by afternoon markets, to a farmer, is the *necessity* of returning home in the dark of winter's evenings: this, however, is an inconveniency which farmers in general who go to market at ten o'clock in the morning *voluntarily* dispense with. The Innkeepers may be said to be the only sufferers by afternoon markets.

The FAIRS of Norfolk are not so considerable as they are in some other counties; except the fair of St. Faith's, which is one of the largest fairs in the kingdom.

But

But, as I made a point of attending some of the principal fairs, and of minuting the observations which struck me while they were fresh in the memory, I forbear saying any thing further respecting them in this place ; but refer to the Minutes themselves ; which I publish the rather, as nothing gives a more lively and just idea of what may be called the ECONOMY OF LIVESTOCK in a given District, than the business which passes at the fairs of that District. Besides, fairs and markets are the great stumblingblocks to gentlemen farmers ; who, through want of *affability*, or want of *courage*, remain in general entirely ignorant of the business of fairs and markets ; even when they have made considerable progress in the business of the farm.—This is my only motive for giving the minutæ of the Minutes as they stand in my Minute-book ; for on a subject so totally new as this is, I believe, to written agriculture, every incident becomes valuable ; I mean to those, whom, in this particular, I most especially wish to inform.

For observations on St. Faith's fair (1781), see MIN. 27.

For observations on Holt fair, see MIN. 39.

For observations on Walsham corn-market, see MIN. 80.

For observations on Aylesham fair, see MIN. 94.

For observations on Norwich clover-feed market, see MIN. 101.

For observations on Walsham fair, see MIN. 105.

For observations on Worstead fair, see MIN. 107.

For observations on Ingham fair, see MIN. 112.

For general observations on Norfolk fairs, see MIN. 112.

For observations on Cawston sheepshow, see MIN. 123.

For observations on St. Faith's fair (1782), see MIN. 134.

For sundry observations on Smithfield market, see the article BULLOCKS.

27. WHEAT.

27.

W H E A T.

IN TAKING a systematic view of the culture of this crop, it will be proper to consider,

1. The species of wheat usually cultivated in Norfolk.
2. The soils on which it is usually grown*.
3. The succession; or the crop, &c. which wheat usually succeeds, in the management of East Norfolk.
4. The soil process,
5. The manure process,
6. The seed process,
7. The vegetating process,
8. The harvest process,
9. The farmyard process,
10. The markets, for wheat.

} in practice for
wheat in Norfolk.

I. THE SPECIES.—The long-established “stock” of this country is the “Norfolk red,”—which is said to weigh heavier than any other

* The MANURES applied for WHEAT appear under
ART. MANURE PROCESS.

wheat

wheat which has yet been introduced into the county. Its appearance, however, is very much against this assertion: it is a very long bodied, thin grain, partaking more of the shape of rye, than of well bodied wheat.

A favorite new species has lately been introduced, under the name of the "Kentish white cosh." The grain is plump and red; but the "cosh," or husk, white; resembling very much the velvet wheat of Surrey and Kent. The "cast," or yield of this is allowed to be greater than that of the "old red,"—and the millers begin to like it nearly as well;—though, on its first introduction, some fifteen or twenty years ago, they were, or affected to be, prejudiced against it.

A remarkable circumstance is said to take place, respecting this species of wheat, when sown repeatedly in Norfolk. Though the cosh be perfectly white on its introduction, and though it be studiously kept separate from the red cosh; yet, by being repeatedly sown, year after year, it loses the fairness of its husks; which first become "pied," and, at length, change entirely to a clear red, resembling those of the old Norfolk stock. I have seen them in
their

their pied state, and have been assured by men of observation, that they acquire this state, though kept perfectly separate from the red cosh variety. If this be really a fact, it is a striking evidence of the power of soils and situations, in establishing what the botanists call *varieties*, in the vegetable kingdom.

II. THE SOIL.—In this, as in most other Districts, wheat is sown on almost every species of soil. But the farmers here, as in other places, too frequently find out, at harvest, that a full crop of barley, or oats, would have paid them better than half a crop of wheat.

In the northern parts of this District there are many very light-land farms,—and some in the central parts of it—which pass under the denomination of barley farms: and on which the occupiers judiciously content themselves with a small proportion of wheat.

But the southern parts of the District, and the south-east parts of the county in general, enjoy a stronger, richer soil, well adapted to the propagation of wheat.

III. THE SUCCESSION.—In the regular course of husbandry, the wheat-crop succeeds invariably

bly the *second year's lay*; but, as has been already intimated, the regular succession is in a greater or smaller degree broken into by farmers in general; and it sometimes happens that wheat is sown on the *first year's lay*—sometimes after *peas*, or after *buck harvested* or *buck plowed under*, or *turneps*, or sometimes on a “right-out summerly,” or, *summer fallow*. But it may be said, without hazard, that three fourths, perhaps nine tenths, of the wheat sown in *this* part of the District, is sown on the *second year's lay*.

IV. SOIL PROCESS.—This varies with the nature and state of the soil,—the nature of the preceding crop,—the circumstance of the farm, and the skill and judgment of the farmer.

1. The prevailing practice is to make a “backward summerly”—a sort of *autumnal fallow*—of the SECOND YEAR'S LAY.

When pasturage is scarce, the second year's lay is sometimes sown on the “flag;” that is, upon the unbroken furrow of *one plowing*; especially if the seed be intended to be dibbled in. But, for broadcast sowing, neither the depth of the Norfolk soil (except in some few places)

places) nor the construction of the Norfolk plow, will admit, with any degree of propriety, of this (in many parts of the kingdom) most excellent practice.

THE BACKWARD SUMMERLY of the SECOND YEAR'S LAY, is made in different ways.

Some farmers plow only twice; rice-balking the first time very fleet. When the flag is rotten, they harrow across and set on the muck; and, the last plowing, go a full depth; laying the soil in "warps," or wide flat beds, on which they sow the seed abovefurrow.— This, however, is considered, as it really is for wheat, a slovenly practice.

Others plow three times: the first fleet; the second a full pitch; the last of a mean depth; with which last plowing the seed is plowed in underfurrow. The soil is harrowed between the plowings, and the dung in this case set upon the second harrowing, and plowed in with the seed.

But the practice of those who excel in their profession, and who are, in their neighbourhood, looked up to as superior husbandmen, is this:

His

His second year's lays having finished his bullocks, and brought his stock cattle, and horses, through the fore part of the summer; and his first year's lays having been mown, and ready to receive his stock; the farmer begins to break up his "ollard" for wheat, by rice-balking them as fleet as possible, so as to carry an even regular furrow; embracing the opportunity when the surface has been moistened by a summer shower.

In this rice-balked state his summerlies remain until the wane of harvest; when his corn being chiefly in, and his horses more at leisure, he harrows, and afterwards plows his summerlies across the balks of the first plowing; bringing them up, this second plowing, the full depth of the soil.

On this plowing he spreads his manure, harrows, and immediately "scales" it in by another fleet plowing.

This third plowing has several good effects: it mixes, effectually, the soil and the manure, —cuts off and pulverizes the upper surfaces of the furrows of the second plowing; and by doing this, most effectually eradicates or smotherers such weeds as had escaped the two former

mer earths ; and, at the same time, by excluding the air from the under parts of those furrows, renders the whole as mellow and friable as a summer fallow.

In this state it lies until seed-time ; when it is harrowed, rolled, sown, and gathered up into ridges of such width as is agreeable to the nature of the soil, or the skill or fancy of the farmer.

Those of six furrows are the most prevalent ; but there are very good farmers who lay their wheat land into four-furrow, and others into ten-furrow, ridges ; which last they execute in a style much superior to what might be expected from *wheel* plows.

But the six-furrow work is that in which the Norfolk plowmen excel. It is generally performed with three plows in this manner : the first sets out the ridge, the second takes the middle bout, and the last makes up the furrows. The best plowman is of course put last, the second first, and the worst takes the middle bout. The first spit is sometimes turned partially back by the second, by letting the off-horse go back *in* the first-made furrow ; and sometimes the first furrow is left entirely open,
by

by letting the off horse go back *out* of the first furrow. The last way makes the ridges wider, and rids more ground; but the first stirs the ground better, and is thought to distribute the seed more evenly. The plowman who goes last and makes up the furrows, divides his horses by means of a long "horsetree," or middle whipping; so that each of them takes an outside furrow, while he and his plow alone occupy the furrow he is making up. This answers two good purposes:—it gives the plowman a free sight, and prevents the horses from treading the ridges. If the soil be wet and poachy, some judicious farmers divide the middle-bout horses in the same manner. The horses are of course rather awkward at the first setting-off; but they soon become tractable, and much more steady than when they stagger about, and jostle each other, in the same furrow. The four-furrow ridges are plowed in a similar manner by two plows.

There are several advantages arise from this method of laying-up narrow ridges. The whole business is carried on in regular progression. The seedman begins on one side of the close, and sows towards the other with

as

as little interruption as he could do for one plow. For although two or three plows are employed in the same piece, there are no fresh settings-out, nor any uneven work at last; save such as is necessarily given by the figure of the field.— There is much time saved (more especially when wheel plows are used) in altering the plows; and the whole piece is equally well executed; each ridge being set out, and each furrow made up, by the same men.

The Norfolk plowmen, when plowing in wheat, carry very narrow furrows; so that a six-furrow ridge, set out by letting the off-horse return *in* the first-made furrow, does not measure more than three feet eight or nine inches.

2. AFTER THE FIRST YEAR'S LAY, the seed is generally sown on the flag.

3. AFTER PEAS, the farmer gives one two three or four plowings, and manages in every other respect the same as he does after the second year's lay.

4. AFTER BUCK HARVESTED, he is more confined in respect of time, and seldom gives more than two, sometimes but one, plowing. If he plow twice, he spreads his manure on the stubble, scales it in fleet, harrows, rolls, sows and gathers up the soil a mean depth into narrow

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work.

work. If he plow but once, he, in like manner, spreads his manure on the stubble; and, what seems very extraordinary to a stranger, sows his seed among his manure; plowing the whole in together, and gathering his soil up into narrow ridges; as if it had undergone the operations of a fallow.

There is, however, one very great evil attends this method of sowing wheat after buck; especially where rooks are numerous. The buck which is necessarily shed in harvesting the crop, and which is, of course, plowed under with the manure and seed-wheat, vegetates the succeeding spring, and becomes a weed to the wheat; and, what is of still worse consequence, should rooks get a haunt of it, they will not only pull the buck up by the roots, but the wheat plants with it; so as to leave large patches almost destitute of plants. But, by first scaling in the manure and self-sown buck very fleet, and harrowing the surface fine, the buck vegetates, and the evil consequence is thereby, in a great measure, prevented.

5. AFTER BUCK PLOWED UNDER.—This, as well as the preceding, is a favorite practice among good farmers; and the Norfolk plowmen perform the operation of plowing the crop under,

under, in a masterly style. They sweep it down by the means of a brush or broom, made of rough bushes fixed to the front of the "fickle-tow;" or fore tackle of the plow, between the wheels; so as to bear down the buck without lifting the wheels of the plow from the ground. To prevent this, when the buck is stout, it is first broken down by a roller, going the same way as the plow is intended to go. This operation is performed when the plants are in their fullest bloom.

The surface is, sometimes, harrowed and rolled after plowing: sometimes left rough: the former is perhaps the most eligible management.

In either case, the soil remains in that state until after harvest, when it is harrowed and taken up a full pitch, across the warps.

At seedtime, it is harrowed,—rolled,—sowed,—and usually gathered up into "narrow work," in the manner above described.

6. AFTER SUMMER FALLOW.—The practice of summer fallowing seldom occurs in this District;—turneps or buck being generally introduced as a substitute for it. However, when land has been worn down by cropping, and is much run to "beggary" and weeds, a "right-

out summerly" is esteemed by many judicious husbandmen as good management; and is, it seems, since the late failure of the turnep crops, gaining ground every year.

The close of a summer fallow is the same as that of a backward summerly: the manure is scaled in with the last plowing but one, the seed plowed in moderately deep, and the soil gathered into narrow ridges by the last plowing.

7. AFTER TURNEPS.—In general, the soil is plowed a mean depth, and the seed sown over the first plowing: if, however, the turneps be got off early, the weeds are sometimes first scaled in, and the seed plowed under with a second plowing; gathering the soil into narrow ridges.

GENERAL OBSERVATION.—Excellent as the Norfolk practice of husbandry may be, taken all in all, it seems in this place necessary to observe, that although there are some superior husbandmen who put in their wheat crops in a masterly style, a very considerable part of the land sown with wheat in Norfolk, is sown over in a most unfarmerlike manner.

The second year's lays in general are broken up too late, and receive too inconsiderable a portion of tillage to bring them into a husband-like state.

Were

Were a Kentish, or any other good wheat, farmer, who had heard much of the superiority of the Norfolk husbandry, to ride through East Norfolk in the month of November, he would experience some difficulty in conceiving himself travelling in a country of which fame has so long spoken loudly. It is true, he would not unfrequently be struck with a beautiful object;—a kind of fluted frize-work, or any other ornament to the face of the country his fancy might picture to him; but he would not less frequently be disgusted with the sight of fields which he would little suspect, on a cursory view, to be sown with wheat. He would rather, at first sight, take them for rough fallows, on which sheep had been foddered with hay they could not eat; the whole surface being strewed with tufts of roots and stems of withered grasses, and with grassy clods of every shape and dimension *.

* There are, nevertheless, men who argue in favor of this management; and, were it prudent to sow wheat on very light "running sands," it might be proper to preserve part of the "wreck," as it is well termed, to prevent the sand from being run together by heavy rains; but soils of this nature are, as has been already observed, generally improper for wheat.

In their culture of barley and of turneps, the Norfolk husbandmen, no doubt, excel; but, taken collectively as a body of professional men, they cannot, deservedly, be ranked among wheat farmers.

Nevertheless, there are, as I flatter myself fully appears by the foregoing detail, some husbandmen in Norfolk who merit no part of this censure; their management being, perhaps, the best that art can devise for the soil they act upon: while, therefore, I condemn them as a body (for reasons which I flatter myself are obvious), I mean to except, with all due respect, a number of individuals.

V. THE MANURE PROCESS.—Land which has been recently marled or clayed, requires no further addition;—nor has land which has received fifteen or twenty loads of dung and mould for turneps,—the first year's lay having been teathed in autumn, and the second fed off,—any need of another dressing for wheat,

Where the soil is good, and the wheat apt to run too much to straw, some few judicious farmers set their manure upon the young clover, thereby checking the effect of rankness to the wheat,

But

But the most general practice is to spread the manure upon the broken ground, in the manner described in the last section ; or, if the seed be sown upon the flag, to spread it on the turf and plow it under ; or to spread it on the plowed surface, and harrow it in with the seed, as a topdressing.

The last I have seen done in the following judicious manner. Three or four bouts are first plowed in the middle of each warp, forming a narrow bed of plowed ground wide enough to set the manure upon, but not too wide to be received between the wheels of the cart ; which, in setting on the muck, run in the plow-furrows on each side the bed. The manure is then set in hillocks upon these plowed slips ; the warps are finished plowing ; the manure spread over them ;—the seed sown ;—and the whole harrowed in together,

By this management the manure goes on with ease to the team, and without the newly-plowed ground being cut to pieces by the wheels of the cart, or torn about by the feet of the horses ; for the cart being always, as it were, on the nail, the horses have no obstacles to struggle against. In a wet season this practice is singularly eligible.

The quantity of manure set on for wheat is generally less than that set on for turneps. Of *dung*, eight to ten cart-loads (as much as three horses can conveniently draw) an acre is reckoned a tolerable dressing. Of *lime*, three to four chaldrons an acre. Of *rapecake*, a ton to three acres. Of *foot*, about forty bushels an acre.

For observations on the *species* of manure for wheat, see the article MANURE PROCESS.

VI. SEED PROCESS.—In describing this department of the culture of wheat, it will be necessary to perspicuity, to consider, separately,

1. The time of sowing;
2. The preparation of the seed;
3. The method of sowing;
4. The quantity of seed;
5. The method of covering;
6. The adjustment of the soil.

1. THE TIME OF SOWING.—An orthodox farmer never thinks of beginning "wheat-fee" until after St. Faith's fair; which is held on the 17th of October. So prevalent, indeed, is this custom, that, perhaps, nine of ten of the farmers in East Norfolk begin to sow wheat
between

between the 17th and 24th of October;—and continue till the beginning of December;—sometimes even until Christmas. If they finish in November, they consider themselves in very good time. Wheat sown in the ordinary broadcast manner is, however, here spoken of; for dibbling or setting of wheat, Michaelmas is esteemed the best time.

The reason which the Norfolk husbandmen give for sowing their wheat so late, compared with the practice of other lightland counties, is, that their early sown wheats are liable to be winterproud, and run too much to straw; whereas their late-sown crops afford less straw, but a greater “cast;” more especially on land which has been recently marled.

This last idea, perhaps, accounts for the origin of their present time of sowing. The present practice of husbandry, in Norfolk, was established a century, perhaps two or three centuries, ago; and has been handed down from father to son with but very little improvement or alteration. The present time of sowing was, of course, fixed when the land was full of marl, and was no doubt judiciously founded on experience. Marl, however, has now, in some measure,

measure, lost its efficacy ; and it seems probable, that not only the time of sowing wheat, but the very system of Norfolk husbandry will require, ere long, to undergo a considerable change. Suffice it, however, in this place to say, that there are some sensible, judicious men, who already see the folly of waiting for St. Faith's fair, before they begin to sow their wheat.

2. PREPARING THE SEED.—The ordinary method of preparation is to steep the seed in brine, and candy it with lime, in a way similar to that practised in other counties ; and, probably, with the same effect.

There are, however, men in this county who speak with firmness and confidence of that they can prevent, by a preparation of the seed, the smut or "brand" of wheat. They, likewise, seem clearly of opinion, that all wheat would naturally become smutty, if not checked by a proper management of the seed ; but that were it become, through neglect, as black as smut itself, they would engage in three years time to effect a radical cure. The first year, it is allowed, there will many grains escape ; the second, some ; but the third year, there will not remain

remain in the whole crop one "brandy" kernel.

This is speaking closely to the point, and deserves a hearing. The process, though simple, is truly chemical; and the idea, I believe, totally new to written agriculture.

Their method is this: Instead of dissolving the salt in a large proportion of water, in order to form a brine to steep the wheat in; it is dissolved in a very small quantity of water;—barely enough to bring on the solution. With this *liquid salt* the lime is slaked; and with this saline preparation, in its *bottest* state, the wheat is candled; having previously been moistened, for the purpose, with pure water.

I shall not, here, comment on this process; but only observe, that the wheat crops of the persons who pride themselves on this practice, are, in general, freer from smut, than those of their neighbours.

3. THE MODE OF SOWING.—Broadcast is the prevailing practice. Dibbling, or setting, is in much use on the Suffolk side of the county.—Dibbling and fluting rollers are also used by some few individuals. But what is remarkable, drilling is, in a great measure, unknown in Norfolk;

the seedsmen sees to an inch how far he has sown, and where each handful ought to fall; he, of course, leaves no slips unsown, nor gives others double feed.

If the soil be intended to be gathered into six-furrow ridges, the seedsmen sows, on the warps, about two thirds of his seed;—if into four-furrow work, somewhat less than two thirds*.

The plowman then begins to set out his ridges, the same way that the warps are drawn; but without any regard either as to their straightness, or their width; they being intended merely to direct the seedsmen, not the plowman. In six-furrow work, the middle-bout plowman follows next, and after him the seedsmen, straining the remainder of his seed in the trenches made by the middle-bout plow; which is called “sowing the furrows.” The head plowman follows last,—covers up the seed, and finishes the work. In four-furrow work, the two first furrows are sown, and the ridgets made up in a similar way.

* See MIN. 67, on this operation.

The use of sowing the furrows is to give the outsidcs of the ridgets their due proportion of seed ; thereby preventing the interfurrows from being left too wide and naked of plants.—Some farmers sow only one of the outside furrows ; namely, that toward the worked ground ; and this is undoubtedly the more requisite business ; for the seed on this side having been all gathered up by the preceding furrow, the crumb or shovelling of the inter-furrow is left naked ; and there would, of course, be no seed buried under it, if it were not thus sown by hand, in the preceding plow-furrow.

- In six-furrow work, three plows employ a seedsmen, and finish about three acres a day. In four-furrow work, two plows find employment for a seedsmen,—there being, in this case, more furrows to be sown,—and finish about two acres.

The dibbling, “dabbing,” or setting of wheat, is confined principally to the country about Wyndham, Attlebury, Buckenham, Harling, &c. In the other Districts of Norfolk it is but little known, and no where *practised* ; though sometimes tried by way of experiment.

The

The propriety of the practice depends upon circumstances ; such as the price of labour, the price of the seed, and the quality of the soil. There seems, however, one thing always essentially needful ; that is, a good soil. And this may, in some measure, account for the slow progress which it has made in the more northern parts of East Norfolk ; but why it should not gain ground in the Blowfield, South-Walsham, and Flegg Hundreds, is a matter of surprize. Perhaps, nothing but the sanction of custom and fashion is wanted to render it, in this well soiled quarter of the county, the universal practice.

For a full account of this process, see the MIN. 23. 26. 28.

The Dibbling Roller is made somewhat similar to the common spiky roller ; with, however, these distinctions : it is in itself shorter, and the spikes, instead of standing perpendicular to the circumference, are bent obliquely thereto, that they may leave smooth and clean indentures, without pulling up or breaking the flags. Between each row of spikes is a scraper to disengage the roller from the mould, which is apt to stick between the spikes, and which

in moist weather renders it wholly useless.—The seed is sown broadcast over the indentures, and swept in with a bush-harrow.

I have seen wheat come up very well after the spiky roller; but an implement which a shower of rain renders useless, seems ill-adapted to the business of sowing wheat in November*.

4. QUANTITY OF SEED.—Three bushels an acre, broadcast, is the favorite quantity of seed, without much regard being had to the time of sowing.

This accounts in some measure for the want of success in the early sown wheats. Three bushels of seed sown in September is equal to four or five bushels sown the latter end of November. It is no wonder, then, that the straw should prove slender, and the grain light: for the plants being too numerous, and the soil weak and shallow, though perhaps in sufficient heart to push the plants through the winter and spring, the vigour of the soil is spent before harvest, and the ears of course abridged of half their load. Whereas, had there been a due proportion of plants, the exhaustion during winter and spring would have been less, and the strength of the soil reserved for the

* The fluting roller I did not meet with.

more

more material purpose of perfecting the plants at harvest.

5. COVERING THE SEED.—The seed sown over the rough furrows of the first or second plowing is covered in the usual manner with tined harrows: generally with two small harrows and two horses led by a boy, and sometimes guided with a plow line; the man or boy following the harrows to lift them up, and disengage them from the rubbish, which too frequently incumbers them.

That sown after the hand dibbles or the dibbling roller is swept in with a bush-harrow, made of a gate, hurdle, &c. wattled with thorns or other bushes.

6. ADJUSTING THE SOIL.—The subsoil of Norfolk being in general of an absorbent nature; cross water-furrows are in many instances unnecessary: however, where the subsoil is a brickearth, which is not unfrequently the case, cross-furrowing becomes absolutely necessary to good management, though not always put in practice.

Some neat husbandmen roll their “wheat-tiggs” immediately after sowing. A common roller takes two ridges at once, the horses draw-

ing in the furrow between them. This gives an immediate neatness ; renders the crop beautiful at first coming up ; anticipates the labour of rolling in the spring ; and thereby precludes the danger of unlocking the weed seeds at that vegetative season of the year.

VII. THE VEGETATING PROCESS.—*Hand-weeding* is the principal labour bestowed upon the wheat-crop between seed-time and harvest. If the interfurrows be wide and thin of plants, or if the crop be otherwise broken, *the hoe* is sometimes, but very rarely, used.

Pasturing wheat in the spring, though it cannot be called a common practice, is, nevertheless, frequently done ; especially when spring food is peculiarly scarce, as it was in the spring of 1782 ; when almost all the wheats in the country were fed off : not by sheep, as is usually the case, but by every other species of live stock. See MIN. 106.

If wheat abound with “red weed”—poppies—*swine* are frequently turned upon it to eat out this troublesome weed ; which they will do, with little or no damage to the wheat.

For

For the method of scaring *rooks*; and observations on *game*; see the general subject VEGETATING PROCESS.

VIII. THE HARVEST PROCESS.—1. THE TIME OF WHEAT HARVEST, in Norfolk, is somewhat late. The seasons are later, here, than they are in the more southern provinces, and the Norfolk farmers, in general, suffer their wheat to stand until very ripe. In some of their small “woodbound pightles,” they are, indeed, under a degree of necessity of letting it stand until it can be cut and carried immediately; for should it, in this situation, receive much wet in the shock, they would find it difficult to get it dry again, before it received considerable damage.

2. THE METHOD OF HARVESTING: WHEAT, as has been observed, is seldom cut by the acre; every farmer providing harvestmen sufficient to get in his crops.

It is, almost universally, “shorn” with sickles; either with or without teeth, as best suits the hand or the fancy of the “shearer.” Of narrow work each man takes his rig; a method which makes the work go on regu-

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larly and with great conveniency to the workmen. Sometimes each man binds his own corn; but more frequently, two-and-two lay together; the first making the band, the latter binding the sheaf. If they work singly, they drive the corn before them with their feet, until having collected a sheaf, they stop and bind it up. This method is more expeditious than that of delivering the handfuls in detached reaps or shoves, which, in this narrow work, would be tedious to gather up; but, in appearance at least, it is wasteful, and at the same time conveys, to a stranger, an idea of slovenliness. The bands are, in general, knotted; the sheaves made of indeterminate sizes; tied loosely, with the band about the middle; set up in shocks, as close as they can stand, and with generally a sheaf placed at each end, as if studiously intending to exclude the air entirely from getting into the shock. No caps or head sheaves are ever made use of. If the crop be tall, the stubble is left eighteen inches or two feet high.

Unworkmanlike as all this would seem to a man of Kent, the Norfolk reapers have one qualification which, in some measure, atones for

for their sins of undoubted slovenliness: a common hired harvestman, who is not working for himself, but for his master, will clear with his own sickle, one day with another, from two to three roods of wheat; in proportion to the stoutness of the crop.

If the sheaves receive much rain in the shock, they are, the first fine day, set out singly, in order to have the benefit of the sun and air; which, in the close state in which they are usually huddled together, it is impossible for them to receive. This is by no means so tedious an operation as theory may suggest; but is, when the sheaves are very wet, an eligible expedient.

3. An excellent regulation is common, in this District, respecting GLEANERS: every parish, or parishes in general, reserving their scattered corn for their own parishioners. This is not only equitable; but rescues the farmers from those clouds of gleaners, which, in some countries, stroll about from parish to parish. But, even with this regulation, the number of gleaners which are sometimes seen collected together, is shameful; generally including a number of strong healthy young women, who

would be much more laudably employed, as they are in other Districts, in assisting to reap the crop. Some farmers allow the gleaners to follow the shearers; but, in general, they are not permitted to enter the close until the shocks are out of it.

4. LAYING UP THE WHEAT CROP. Formerly the wheat crop was put entirely into the spacious barns, with which this District abounds; a wheat rick being a phenomenon; of late years, however, pillar frames have been constructed; and wheat ricks are now no longer an uncommon sight.

5. WHEAT STUBBLES. — Notwithstanding the length which stubble is generally left, it is seldom mown for stable litter: the general practice being to throw turneps upon it in autumn, and, when the bullocks have trampled it down, to pull it into “rucks” with a pair of harrows, and carry it home as litter for the yards,

IX. THE BARN MANAGEMENT. — After what has been said already, on this subject, under the general head FARMYARD MANAGEMENT, little remains to be added here.

Wheat

Wheat straw, being of less value, in Norfolk, than in most other places; owing to the great quantity of reed used in thatching; less care is observed in thrashing wheat, here, than in places where it is either sold for litter, as about London, or where it is in general use for thatch, as in most parts of the kingdom: even when it is intended for thatch, it is thrashed rough, and shook off, heads-and-tails: it being the universal practice of thatchers, here, to blend their straw, and *draw* their thatch.

X. MARKET.—This, also, has been noticed in the general articles: suffice it, therefore, here to add, that Norfolk abounds with corn-mills;—the small streams which are very abundant in this country, are convenient supplies for watermills: besides which, numbers of windmills are dispersed over the face of the country; some of them very capital and costly. One lately erected in this District is said to have cost twelve hundred pounds.

For observations on the effect of *berbery* on wheat, see MIN. 13.

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For

For an instance of *mowing* wheat, see MIN. 14.

For an experiment with different *manures* for wheat, see MIN. 18.

For an experiment on the mode of *sowing*, see MIN. 19.

For the origin and method of *setting* wheat, see MIN. 23.

For further observations on *setting*, see MIN. 26 and 28.

For the method of *plowing* for wheat against *pheasants*, see MIN. 41.

For an instance of *sowing* wheat *between furrow*, see MIN. 43.

For an exception to the common method of *sowing* wheat in four-furrow work, see MIN. 67.

For observations on the practice of *pasturing* wheat, see MIN. 106.

For an experiment made by planting *berbery* among wheat, see MIN. 133.

28. BARLEY,

28.

B A R L E Y.

THIS SUBJECT, likewise, requires to be divided into the following articles :

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|--------------------|------------------------|
| 1. Species, | 6. Seed process, |
| 2. Soil, | 7. Vegetating process, |
| 3. Succession, | 8. Harvest process, |
| 4. Soil process, | 9. Barn management, |
| 5. Manure process, | 10. Market. |

I. SPECIES.—The common long-eared barley (*hordeum vulgare*) is the prevailing and almost only species of barley sown in this District.

II. SOIL.—The Norfolk soil is peculiarly well adapted to this crop : even the lightest of it, if it be in sufficient heart, will bear tolerable barley ; and the strongest is not too heavy for this grain ; which is no where produced in greater perfection than in Norfolk ; whose
barley

barley is coveted for feed throughout the kingdom.

III. SUCCESSION.—In the grand routine, barley succeeds *wheat* and *turneps*; and in some very light land farms, it is sown instead of wheat, after the *second year's lay*.

IV. SOIL PROCESS.—I. AFTER WHEAT;—the stubble having been trampled down with bullocks at turneps, and wheat-heel being finished, the farmer begins to “scale in his wheat stubbles” for a winter fallow for barley. If the land lie in narrow work, the ridges are split; if in warps, the ground is likewise plowed clean, but very fleet. The beginning of March, the land is harrowed; and, presently after, the farmer “takes up his wheat stubbles,” by a full-pitch cross plowing; or, if the season be wet and the soil heavy, he reverses the ridges. In April he harrows, and begins “stirring for barley,” with another full-pitch plowing, lengthway; generally gathering the soil, by this plowing, either into five-pace, or into ten-pace warps; in which it lies until seedtime;—when it is harrowed; rolled; sown;

sown; plowed fleet; reversing the warps, and "flading down" the furrows,—so as to render the entire surface as even and level as may be.

2. AFTER TURNEPS,—the foil is generally broken up as fast as the turneps are got off; if early in winter, by rice-balking; if late, by a plain plowing. The general practice, if time will permit, is to plow three times; the first fleet; the second full-pitch; the last a mean depth; with which last the seed is plowed in.

But when it is late before the turneps are got off, different ways of management are followed, according to the state of the foil, and the season, and the judgment of the farmer.— Sometimes the ground is plowed only once, and the seed sown above; but more frequently it is broken by three plowings, as above; notwithstanding, perhaps, the farmer has not more than a week to perform them in.

This at first sight appears injudicious management: the plowings being so quick upon each other, neither the root weeds have time to wither, nor the weed seeds to vegetate; yet a principal part of the moisture of the foil (a thing peculiarly valuable in Norfolk at that time

time of the year) is necessarily exhausted. But this being a frequent practice of some of the best farmers in the District, we may rest assured that two plowings and harrowings are not wantonly thrown away. The Norfolk farmers in general are masters in the art of cultivating barley. They seem fully aware of the tenderness of this plant in its infant state, and of its rootlings being unable to make the proper progress in a compact or a cold soil: they therefore strive by every means in their power to render the soil open and pulverous. To this intent it is sometimes two-furrowed, and sometimes a fourth earth is given; especially in a cold wet season.

The backward spring of 1782 tried their skill: some lands were two-furrowed twice-over, laying the soil up in ridgets, dry and hollow; so that two or three fine days fitted it for the reception of the seed; breaking under the seed-plowing as fine as ashes.

Nor is this caution confined to "turnep barley," but is extended more or less to "stubble barley;" which, however, does not require so great a degree of care; the soil in this case being kept open, in some measure, by the undigested

digested stubble, and the roots of grasses and other weeds; which a turnep fallow is, or ought to be free from.

This, perhaps, accounts fully for the superiority of stubble barlies, over those produced by a well tilled, well manured turnep fallow : a mysterious fact, which cannot, perhaps, be explained on other principle.

3. AFTER LAY,—the turf is generally broken by a winter fallow, and the soil treated in other respect, as after wheat. (For an exception see MIN. 57.)

V. MANURE PROCESS.—Barley is seldom manured for; except when sown after lay; when it is treated as wheat. After turneps, no manure can be requisite; nor after wheat, if this has been manured for: if not, the turnep crop following immediately, the barley is left to take its chance; unless the opportunity be embraced for winter marling.

VI. SEED PROCESS.—I. TIME OF SOWING.—Notwithstanding the dryness of the Norfolk soil, barley may be said to be sown late, in this District. There is little sown before the middle of April, and the seedtime seldom closes until

until towards the middle of May. The time of sowing, however, depends in some measure on the season; which, with respect to sowing barley, is more attended to in Norfolk than perhaps in all the world beside. Until Linnæus hit upon the idea of sowing by the foliation of trees, the republic of agriculture never heard of any other guide to the time of sowing than the almanack; which is still followed implicitly in every District in this kingdom except Norfolk: where a maxim, probably as old as the present system of husbandry, shews that her husbandmen are not inattentive to the foliation of trees with respect to the proper season of sowing; their maxim importing, that the sowing of barley ought to close with the foliation of the oak:—

“ When the oak puts on his gosling grey,
“ ’Tis time to sow barley night and day;”

that is, when the oak puts on that fallow appearance which it does at the time the buds are breaking, a few days previous to the expansion of the leaves, no time should be lost in getting the seed of barley into the ground;
that

that being the happy juncture which ought to be embraced.

In the backward spring of 1782, barley was sown in June, with confidence, and with success: I have, by me, a sample of exceedingly good barley, produced from seed sown, by an experienced husbandman, the fourth and fifth of June. See note to MIN. 125, for remarks on this incident.

2. PREPARING THE SEED.—I never met with an instance either of fortifying it against disease, or of steeping it to forward its vegetation in a dry season, or a backward seedtime. This is strong evidence, though not a proof, that steeping barley, with intent to promote its vegetation, has no beneficial effect.

3. THE METHOD OF SOWING.—All sown broadcast; and almost all *underfurrow*! that is, the surface having been smoothed by the harrow and roller, the seed is sown and plowed under with a shallow furrow: a circumstance this, which, until I observed it in Norfolk, had never occurred to me, either in practice or theory; though admirably adapted to a light dry soil; and, indeed, to any soil which is light enough to produce good barley; provided it
be

be rendered sufficiently fine, and the seed be not buried too deep.

Whether through general custom, or from particular experience, the Norfolk farmers are very partial to this method of putting in their barley: however, if the season be wet, and the soil cold and heavy, good farmers not unfrequently sow barley above. And, in all probability, the distinction is well founded. In a dry spring and summer, sowing under must, to all human reasoning, be eligible; and in a cold spring, or when the soil is rough with clods, sowing above may be equally good management. Nevertheless, I have known a judicious farmer give, under those circumstances, an earth extraordinary, rather than not have an opportunity of plowing in his seed.

In a forward spring, and when the last piece of turneps happens to be eaten off late, the ground is sometimes, at a pinch, obliged to be plowed only once, and to be sown above; but, even in this case, there are men who are not at a loss for an expedient. Instead of turning over the whole thickness of the soil at once, they "two-furrow" it, and sow *betwixt* in the manner described in MIN. 43.

This

This method, if the under plot be sufficiently moist and mellow to break kindly with the harrow, appears to be most eligible management.

4. THE QUANTITY OF SEED.—Three bushels of barley an acre may be taken as the nearest medium quantity of seed.

5; 6. COVERING,—ADJUSTING.—Whether or not grass seeds be sown over the barley, the surface is harrowed, presently after the last plowing; and, when the barley is up, run over with a light roller.

VII. VEGETATING PROCESS.—Handweeded.

VIII. HARVEST PROCESS.—1. TIME OF CUTTING. Barley, like wheat, is generally suffered to stand until it be *very ripe*.

2. METHOD OF CUTTING.—It is universally *mown into swath*;—with a small bow fixed at the heel of the sitch.—Cradles are not in use; and the North-country method of setting it up in singlets, is unknown.

3. METHOD OF DRYING.—If barley receive wet in the swath, it is treated in a singular method in Norfolk. It is not turned, but

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“*lifted*.”

"*lifted*:"—that is, the heads or ears are raised from the ground, either with a fork or the teeth of a rake; thereby admitting the air underneath the swaths; which, though they be suffered to fall again immediately, do not fall so close to the ground as they lay before they were lifted; the air having free admission under them. This method of lifting is thought to stop the ears from vegetating nearly equal to that of turning; which requires more labour; besides breaking and ruffling the swaths; which, by repeated turnings, lose their stiffness, becoming weak and flabby, and liable to fall into close contact with the ground; in which state the corn presently begins to sprout. When the swaths are become thoroughly dry, and stiff on the upper side, they are then *turned*, that the other side may be got into the same state; and, if the weather be suitable, rendered fit for

4. **COCKING.**—This is never done until a fair prospect of carrying offers itself; it being esteemed in Norfolk, as it is in the southern counties, negligent management to leave barley all night in cock. The method of cocking, or, as it is provincially, and more properly,

perly, called—"gathering,"—is, in Norfolk, performed in a particular manner. Some small part may be gathered by men, with "gathering forks,"—common *corn forks*;—but the principal part of the barley crop is gathered by women, with "gathering rakes:"—namely, strong rakes, with long teeth—with which the swaths are rolled up into wads of about a pitch, or forkfull, each, the women, at the same time, raking the swathsteads. This rids work, saves men, and puts the barley into a convenient form for pitching; a roll hanging better together upon the fork, than a cock made up in layers in the Kentish manner.

5. CARRYING.—Generally two pitchers and two loaders; who load with the hands only: women rake after the carriage: men, at leisure times, rake the stubble with drag rakes: trot with empty carriages: tread mows, and sometimes ricks, with horses: frequently make a "well,"—that is, carry up a flue or chimney, in the middle of a barley rick; and sometimes, when the season is catching, use the same judicious precaution in a "gulph," or mow, in a barn.

IX. BARN MANAGEMENT.—See the general head.

X. MARKET.—Besides what is shipped off to the London and other markets, a considerable quantity is malted in the country; both for a market and for home consumption: this, however, is small, compared with that of other countries of equal extent and populousness: smuggled spirits lessen the quantity;—and the quality of malt liquor, in Norfolk, is lower than in many parts of the kingdom; the “harvest beer” excepted; which is usually brewed in October, and kept round till the ensuing harvest.

For an instance of sheepfold being of great use to barley, see MIN. 11.

For an experiment with lime for barley, see MIN. 29.

For a singular soil process for barley, see MIN. 57.

29.

O A T S.

THE QUANTITY of oats grown in *this* District is inconsiderable, when compared with that of barley.

The only SPECIES I have observed is a white oat, of a quick growth, and probably of Dutch extraction.

They are grown occasionally on all SOILS ; but most frequently on cold heavy land, or on very light unproductive heathy soils.

Oats most frequently SUCCEED wheat or olland barley ; but there are no established rules respecting any part of the culture of this time-serving crop.

The SOIL PROCESS is usually the same as that for barley : the ground being, generally, broken by a winter fallow of three or four plowings ; oats, however, are sometimes sown on one plowing.

The SEED PROCESS, too, is frequently the same : except that oats are more commonly sown abovefurrow than barley is. The *time*

of sowing oats is generally made subservient to that of sowing barley ; some being sown before ; others after barley-*feel* : an uncommon circumstance. I have seen oats sown in June ; and it is remarked by men of observation, that oats sown late, grow ripe earlier than barley sown at the same time. This shews that the Norfolk oats are of a quick-ripening kind. The *quantity of seed* from four to five bushels an acre.

I met with one remarkable instance respecting the culture of oats. The surface of a piece of ground, which had been sown several days with oats, but which were not yet up, was "run," by heavy rains, into a batter ; and baked by succeeding dry days to a crust ; so that the owner despaired of a crop : he therefore, as an expedient, plowed the ground ; turning the oats, notwithstanding they had begun to vegetate, under a fleet furrow. The success was beyond expectation.

This operation, however, was not altogether a game of hazard : there being, it seems, a farmer, somewhere in the District, who uses it in common practice ; plowing in his oats with a very fleet furrow ; and, after they have
"chicked,"

“chicked,” but before they appear above-ground, turning over the soil a full pitch: and he is said to find his account in this singular management.

Two things are, undoubtedly, obtained by this practice: weeds of every sort are either totally destroyed, or sufficiently checked to give the corn an opportunity of gaining full possession of the soil: which, by this operation, if performed in proper season, acquires a degree of porosity, giving a degree of freedom to the rootlings of the young plants, which, perhaps, no other process could give.

The openness and freedom communicated by this operation, seems to be singularly well adapted to the infant plants of BARLEY; which, it is highly probable, might frequently receive benefit from this extraordinary operation.

The HARVEST PROCESS,—BARN MANAGEMENT, &c. of oats, are similar to those of BARLEY.

30.

P E A S.

PEAS cannot be called a staple crop of this country: nevertheless they are every year grown, in greater or smaller quantities; according, perhaps, to the demand of the preceding year; and according to the comparative prices of peas and barley; which, in Norfolk, may be called rival crops; peas being usually sown on wheat stubbles, or on light-land lays, which, in the common course of culture, are objects of the barley crop.

The very low price of barley in the winter 1781-2 sickened the farmers of that crop; and, in the spring of 1782, more peas were sown in East Norfolk, than, perhaps, had ever been known in any preceding year. This circumstance afforded me a favourable opportunity of making remarks on the different modes of cultivation made use of in producing this crop; which, as will appear by the following sketches, has not, here, any settled mode of culture appropriated to

to it. Yet no crop, perhaps, affords greater proofs of the ingenuity of the Norfolk husbandmen, and of their talent for expedients, than that which is now before us.

B——m *dibbled** seven pecks of white peas an acre, on *olland*, once-plowed, in flags, “as wide as he could whelm them.” Two rows of holes on each flag; the holes about three inches apart in the rows; namely, “four holes in the length of the foot,” one pea in each hole. Gave 4s. 6d. an acre for “dabbing;” and hired “droppers” by the day (children belonging to the parish); which cost him about 4s. an acre more. The men offered to dibble and drop for 9s.—The soil free from stones. Finished 27 Feb.

H——d *sowed* four bushels an acre of white peas, broadcast; on *barley stubble*, after turneps—the clover missing. Soil light and shallow. Finished 1 March.

M——s *dibbled* two bushels of white peas an acre on *wheat stubble*. Gave 8s. an acre for dabbing and dropping. Finished the beginning of March.

* Dibbling: for particulars respecting this operation, see MIN. 23.

S———n

S——n *sowed* four bushels, broadcast, on *olland*;—part once plowed; part rice-balked, and afterwards plowed a mean pitch; the whole sown abovefurrow, and rolled before sowing.

G——n *dibbled* two bushels on *olland*; the price four shillings a bushel for dabbing and dropping: about three holes and a half in a foot: one pea in each hole. Flags narrow.

D——l *dibbles* nine pecks on *any thing* which is in heart. Gives any price to have them done well, and put in thick. His dibbled peas, last year, produced ten coomb an acre: dibbles about twenty acres this year: almost done; 21 March.

F——r has *sown* upwards of twenty acres this year on *wheat stubble*, instead of barley: sows four bushels of white an acre. Plows three or four times, and plows in the seed underfurrow. Finished 2 April.

B——r *sowed* four bushels of white an acre, broad-cast, on a *wheat stubble* winter-fallowed: namely, scaled in—two-furrowed across—stirred—harrowed—sowed—and *plowed under*, about three inches deep; the outside furrows sown, and fladed down, and the whole harrowed across once in a place the beginning of April.

B—d

B—d *sows* three bushels of grey peas, broadcast, the beginning of April. He thinks three bushels of grey are equal to four of white.

B——d, on light thin-skinned *olland*, dibbled part with two bushels an acre; and *two-furrowed* the rest with three bushels, *sown* by hand *between the furrows*; each of them about one inch and a half thick! The Norfolk plow singularly adapted to this work; and, in loose broken ground, the process would be excellent; but, in whole ground, the back of the first furrow being smooth, and the peas round and slippery, they do not rest where they fall, but roll more or less into the seams and hollows, notwithstanding the operation was, in this instance, performed in a masterly style.

Thus it appears that various ways are practised in putting in the pea crop; but, from those and other instances, I may venture to draw two general inferences. LAYS are seldom plowed more than once for peas; and the seed is, in general, DIBBLED IN, upon the flag of this one plowing. But STUBBLES are, in general, broken by a winter fallow of three or four plowings; the seed being SOWN BROAD-CAST; and PLOWED IN, about three inches deep, with the last plowing.

31. VETCHES.

31.

VETCHES.

WHEN we consider the nature of the Norfolk soil, and the excellency of the Norfolk husbandry, we are, at the first sight, surpris'd that vetches are not more in use, as summer food for farm horses;—and nothing, perhaps, but the established prevalence of clover can account for it. Clover is not only mown for soiling horses in the stable; but, as has been already noticed, horses are frequently “roped” or teddered on clover; as well as turned upon it loose.

This practice was, probably, established when clover was new to the soil, and the crops of course large and luxuriant; and it was then no doubt the most eligible management: nevertheless, it may, now, when the soil is no longer the favorite of clover, be worth the attention of farmers, of the present day, to try whether more vetches, and proportionably less clover, would not be the most eligible management.

32. BUCK.

32.

B U C K.

BUCK is an object of the Norfolk culture; in a twofold light. It is propagated as GRAIN; and as MANURE: and it will be proper to view it in these two lights. However, the main intention of its propagation, whether as a crop; or as a melioration of the soil, being the same; namely, the cleansing of foul land; it will be convenient to keep the two objects in nearly the same point of view.

I. With respect to SPECIES, there is only one; this grain having not yet, I believe, run into any *varieties* sufficiently striking to have distinguishing names appropriated to them.

II. It is sown almost indiscriminately on all species of soils; except that light poor land has the preference: indeed, it is to this species of soil that buck seems most especially adapted.

III. It

III. It likewise SUCCEEDS every species of crop ; the state of the soil, as to foulness and poverty, being generally more attended to than either the nature of the soil or the crop it bore last.

IV. THE SOIL PROCESS depends upon the state of the soil, and the intention, jointly : if the soil be tolerably clean, and the buck be intended to be plowed under as a manure, it is sown on one plowing : but, in general, the ground is broken, as for barley or peas, to forward the fallow, and secure a crop.

V. THE SEED PROCESS is the same for both intentions ; excepting that, for a crop, the seed is sown first ; namely, immediately after barley-seele : and that intended to be plowed under, is sown as soon afterwards as the ground is in a state fit to receive the seed. It is universally sown abovefurrow. The quantity of seed six pecks to two bushels an acre.

VI. NO VEGETATING PROCESS takes place : the growth of buck is so rapid as to outstrip and smother almost every species of weeds ; an excellency peculiar to this crop.

VII. The

VII. The method of **PLOWING BUCK UNDER**, and the after management of buck fallows, have been described under the article **WHEAT**.

VIII. For the **HARVEST PROCESS** of buck, we refer to the head **BARLEY**; the harvest management of both crops being similar.

IX. The **FARM-YARD MANAGEMENT** of harvested buck is also similar to that of barley; except that the straw being fit for litter, only, and the grain being wanted for the fattening of pigs, in autumn, and the beginning of winter, it is frequently thrashed out presently after harvest, before the livestock are taken into the yards.

X. **MARKETS**. Notwithstanding it is highly probable that there is more buck grown annually in Norfolk, than in the other thirty-nine counties of the kingdom, it is all consumed in the neighbourhood of its growth. It is the universal food of swine and poultry; both of which it fats quickly and well. It is sometimes crushed for pigs, and sometimes given to them whole: in this case, however, some
judicious

judicious husbandmen mix a few oats or peas with it, in order that the swine may grind it down the more effectually, and thereby prevent its passing through them whole.

33.

T U R N E P S.

THE TURNEP CROP is the grand basis of the present system of Norfolk husbandry. I shall, therefore, endeavour to describe its culture as amply as comprehensiveness will permit. In doing this it will be necessary to consider,

- | | |
|----------------------|------------------------|
| 1. The species, | 5. Manure process, |
| 2. The soil, | 6. Seed process, |
| 3. The succession, | 7. Vegetating process, |
| 4. The soil process, | 8. Application. |

I. SPECIES.—There are four different species, or, perhaps, *varieties* of one species, sown in Norfolk.

1. THE

1. "THE COMMON WHITE STOCK,"—white-loaf—white-round—white-rind—or, as it is called in many places, THE NORFOLK TURNEP.

2. "THE PURPLE STOCK." This, in its shape and the manner of its growth, is similar to the common turnep; but its rind is of a dark red or purple colour, its size, in general, smaller, and its texture closer and firmer than that of the common white stock; and it is allowed to stand the winter better, and to preserve its firmness and succulence later in the spring than the common turnep. But it seems to be a fact well established, that the purple turnep is not so well affected by cattle as the other species: this circumstance, added to the smallness of its size, confines its culture within narrow limits.

3. "THE GREEN STOCK." This resembles, still more, the common white turnep; from which it differs principally in the colour of its rind. It is in the hands of very few: these few, however, say, that it is preferable to the common stock.

4. "THE PUDDING STOCK *." This, in its shape, is so perfectly different from the

* The *tankard turnep* of the midland counties.

common sort, that it might well be ranked as a distinct *species*. Instead of spreading itself flat upon the ground, or burying itself partially in the surface mould, it rises in a cylindrical form, eight, ten, or twelve inches high; standing in a manner wholly aboveground; generally taking a rough irregular outline, and a somewhat reclining posture. In colour, contexture, and quality, it resembles very much the common turnep; of which it is by much the most formidable rival. Indeed, for early sowing, to be eaten off in autumn, this long-rooted species seems to gain a preference even to the common white-rounds: the roots are of quick growth,—acquire a great size,—and, standing wholly aboveground, are readily drawn; or, if eaten off by sheep, are consumed with little waste; the refuse shells being smaller than those of broad flat turneps half buried in the ground.

But this very circumstance renders them wholly unfit to be sown as a spring food; for, standing, as they do, exposed on the surface, they become liable to the attack of every frost; and, from annual experience, it is known that they suffer sooner, and more, from
the

the severities of winter, than THE COMMON WHITE-ROUND STOCK ; which, taken all in all, is, I believe, the best species of turnep known, at present, in these kingdoms.

II. SOIL. Turneps are sown on every species of soil, in use as arable land. It is observable, however, that the stronger, heavier soils, of the southern parts of this District, will not bring turneps freely without marl ; which, perhaps, by rendering the soil more friable, and consequently *lighter*, fits it for the tender fibrils of the turnep plant in its infant state ; or, perhaps, the marl itself is acceptable to this *luxurious* plant.

Be this as it may, marl is found highly beneficial to the crop ; and the fact proves, that a soil by nature ungenial to turneps, may in some cases be rendered agreeable to them, by art. See MIN. 136.

III. SUCCESSION. In the regular course of management, turneps succeed barley after wheat ; and in *this* part of the District, where the hexennial round is observed with considerable regularity, they seldom succeed any other

crop ; excepting some few sown on wheat or pea stubble after harvest ; but this is not a general practice :

IV. SOIL PROCESS.—1. The farmer having finished scaling in his wheat stubbles for barley, he begins about Christmas to BREAK UP HIS BARLEY STUBBLES, for turneps.

In this instance, he quits his general rule of beginning to break up a fallow with a fleet plowing ; for, in breaking up a turnep fallow, he goes the full depth of the soil—" turning it " up a full pitch to take the winter."—His motive in this, as in most other cases, is a good one. In this instance, indeed, his practice obviously proceeds from a degree of necessity ; his general plan of management not allowing him time to plow his turnep fallows more than once, during the winter season. For, no sooner has he given them this one plowing, than his wheat stubbles require to be taken up for barley ; which, with his other spring crops, engage every hour of his time, until the close of spring feedtime.

2. This finished, he begins TO TAKE UP HIS TURNEP FALLOWS. In doing this, too, he deviates

viates from general practice ; for the second plowing of a turnep fallow is not across but lengthway. But here, likewise, he acts from a degree of necessity ; for the first plowing having been given the full depth of the soil, there is no whole ground left for the plow to lay hold of in cross plowing ; and the flags, of course foul, having lain some months unmoved, are become too tough to be cut readily with the coulter ; but would, of course, drive into rucks before the plow.

3. This loose woolly state of the turnep fallows is, however, sometimes lessened by harrowing them in the beginning of April ; and, while the lays are shut up, THROWING TURNEPS upon them for bullocks ; the treading of which gives the soil a degree of firmness, and renders the second plowing more tolerable.

4. The teams, from the middle of May to the beginning of July, are almost wholly employed in plowing, harrowing, and manuring the turnep grounds : for the second plowing finished, and the surface smoothed with the harrow, a THIRD PLOWING is given.

5. This plowing being well reduced with the harrow, and the root weeds collected, and

burned or carried off, the DUNG is set on, and, if time will permit, scaled in fleet by a FOURTH PLOWING.

6. After which, the soil and manure are intimately blended with the harrow; and, in due season, the SEED PLOWING takes place.

The fourth plowing, is, however, frequently omitted; either through want of time or other reason; the manure being in this case turned in immediately with the seed plowing, which, in either case, is of a mean depth. The former is, no doubt, to appearance, the most husbandlike practice, and, in a light soil and moist season, may be the most eligible management;—but, in a dry time, and on a stout close-textured soil, the latter, provided the manure be finely broken, and evenly spread, may be more eligible. See MIN. 71. on this subject.

V. MANURE PROCESS.—I. The SPECIES of manure which is principally depended upon for turneps is “*muck* ;”—that is, dung, with a greater or smaller admixture of mould, marl, &c.—*Maltcoombs* are in good repute; and *oilcake* is sometimes used by some few individuals;

dividuals; but it may be said, that nine acres of ten of the turneps grown in East Norfolk are manured for with "muck." The quantity of malt-coombs made in the county is inconsiderable, when compared with the number of acres of turneps annually sown in it; —and rape-cake is principally confined to the north coast: nor are either of these manures equal to the task of keeping up the soil thro' the barley and the two grass crops; much less of assisting to support it under the succeeding crop of wheat, in the manner which may reasonably be expected from a proper dressing of dung; the whole quantity of which, made upon a given farm, ought, in my opinion, to be applied solely to the turnep crop: and, if the soil require support under the wheat, let it be assisted with lime, maltdust, foot, oilcake, or other light manures; which may not be only adequate to securing a crop of wheat, but may be more or less serviceable to the succeeding crop of barley. This has already been mentioned; but I think it merits a repetition in this place.

2. The QUANTITY of dung set on for a crop of turneps, generally depends on the

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quantity

quantity on hand, and the quantity of turnep ground to be manured: there is little danger of setting on too large a quantity: ten to fifteen cart-loads of good *muck* are considered as a fair dressing. Of *oilcake*, about a ton to three acres: of *maltcoombs*, fifty or sixty;—and of *foot*, forty or fifty bushels an acre.

For the method of carrying out, composting, and setting on muck, see the article MANURE PROCESS.

VI. THE SEED PROCESS.—I. THE TIME OF SOWING depends upon the application.—When turneps are intended for early consumption, they are sown as soon as the soil can be got into proper order for them: but if they be intended to stand the winter, the beginning of July is thought to be early enough. The most general rule is, to begin to sow about a week before Midsummer, and continue sowing, from time to time, until about a fortnight after Midsummer;—say, from the seventeenth or eighteenth of June, to the seventh or eighth of July.

It

It is a fact well ascertained, that late-sown turneps stand the winter better than such as are sown early; which are subject to the blight; liable to be rotted by much wet, as well as by frost; and become tough and woolly in the spring, when the later-sown ones are in full perfection.

If a Norfolk farmer could insure his first sowing, he would sow later than he now does; but liable as the turnep crop is to numerous accidents and miscarriages, it is prudent to have a week or two in reserve for a second sowing, in case the first sowing should fail.

2. Old seed is sometimes PREPARED by steeping it in water, in order to forward its vegetation; but this is by no means a general practice. Experiments have been tried on coating the seed with sulphur, foot, &c. as a security against the "fly;" but the results have not been such as to establish any practice of this nature; the seed, whether old or new, being usually sown dry, and unprepared.

3. THE METHOD OF SOWING is universally broadcast. The seed plowing having been gone over, once in a place, with the harrow, the seed is sown with a wide high cast, the
seedsmen

seedsmen going twice over the ground ; agreeably to the prevailing, though not the general, method of sowing.

4. THE QUANTITY OF SEED, two pints an acre.

5. The seed is COVERED by two tines of a pair of light harrows, usually drawn " backward ;" that is, wrong-end-foremost, to prevent the tines, which are generally set somewhat pointed forward, from tearing up the clods, and burying the seed too deep. The horses are universally walked one way, and trotted back again in the same place. This is an excellent custom ; the quick zigzag motion of the harrows at once assisting to level the surface, and so distribute the seeds more evenly.

VII. THE VEGETATING PROCESS. Turneps are universally hoed : and, unless they be sown very late, are generally hoed twice.

1. The distance of TIME between the sowing and the FIRST HOING is very uncertain ; depending on the soil and the season : the size of the plants is the only guide.

If turneps be suffered to grow too large before they be hoed, the plants are difficult to be
set

set out singly, and are liable to be drawn up by weeds; thereby acquiring a slender upright tendency; whereas their natural growth, in their infant state, is procumbent, spreading their first leaves on the ground, and taking the form of a rose.

If the hoe be put in too soon, the plants which are set out are liable to be buried, and their tender rootlings disturbed, in the act of setting out the neighbouring plants.

The critical state observed by judicious husbandmen, is, when the plants, as they lie spread upon the ground, are about the size of the palm of the hand: if, however, weeds be numerous and luxuriant, they ought to be checked before the turnep plants arrive at that size; lest, by being drawn up tall and slender, they should acquire a weak sickly habit.

2. THE METHOD OF HOING turneps is difficult to describe: nothing but practice can teach it:—and, like other manual arts, it ought to be learnt in youth.

A boy in Norfolk, by the time he is the height of a hoe, begins to make use of one: consequently every man who has been bred to
country

country business is a turnep hoer; yet not always, even with this advantage, an expert one.

The operation, to be performed quick and well, requires a quickness of eye, and a dexterity of hand, which every man is not favored with: while some men catch the proper plants to be singled, and set them out, with a rapidity and neatness of execution, very pleasing to the observer.

The hoe is generally drawn round the plant, with a long sweeping stroke; and, when the plants are small, this is the only stroke that can be used with propriety; but, when the plants are out of danger of being buried, a short straight stroke is more expeditious, and, in the hands of some few, makes tolerably good work.

Upon the whole, it matters not which way the operation be performed, provided the ground be stirred, and the weeds eradicated; the plants set out singly, and at proper distances.

3. The proper DISTANCE depends upon the soil, and the time of sowing; jointly, and separately.

Turneps

Turneps sown, early, in a rich productive soil, require to be set out wider than those sown late, on a soil of a contrary nature.

If the soil be at par, the time of sowing ought to regulate the distance: if this be at par, the nature or state of the soil should be the regulator.

These rules, however, self-evident as they undoubtedly are, are not attended to by the generality of farmers; who, led away by long-established custom, or by the interested persuasions of their labourers (farmers in all countries being more or less warped by the opinion of their workmen) suffer their turneps to be hacked out fourteen or fifteen, or perhaps eighteen inches asunder, without any regard to the state of the soil, or the season of sowing.

This practice was established while the Norfolk soil was full of marl, and new to turneps; and when, it is probable, eleven or twelve inches in diameter was no uncommon size; with tops proportionally large and spreading: and fourteen or fifteen inches might, then, be a proper distance. •

But, now, when the efficacy of marl is lessened, and the soil no longer the favorite of turneps,

turneps; which seldom reach more than seven or eight inches in diameter, it is ruinous and absurd to continue the practice.

But the present price of hoeing was likewise established when large turneps were grown, and when wide hoeing might, perhaps, be proper; and a workman cannot, at the present low wages, *afford* to set out the plants at a shorter distance; for though, in either case, he stir the whole ground, yet the more plants he has to single, the more tedious the operation becomes.

If the plants be set out at eighteen inches—each square yard contains four plants: but, at twelve inches, the same space of ground contains nine plants: so that in this case the hoer has more than twice the number of plants to single and set out.

But does it not follow, that the farmer has more than twice the number of turneps to fat his bullocks upon? and is not this interesting fact a sufficient inducement to farmers in general to break through a custom whose original foundation no longer exists, and to silence the persuasions of their men by an adequate advance of wages?

There

There are men, whose good sense and discernment have shewn this matter to them in its true light, and who are fully aware that the "proof" of their turnep crop depends more on its "thightness" than on the size of the plant. And it is the practice of these men I wish to hold out in striking colours, in order that it may become the general practice of the District; as well as to endeavour to do away a pernicious idea which has gone abroad respecting this part of the culture of turneps, in Norfolk; where good farmers do not suffer their turneps to be set out fifteen or eighteen inches apart; but rather from ten to fourteen, accordingly as circumstances point out; and according to the situation of the plants with respect to each other.

Thus, if three plants stand in a line, the two outer ones fourteen inches asunder, the intermediate one is, of course, taken out: but should two healthy plants stand in a wide vacancy, thousands of which vacancies generally occur in every piece of turneps, they are both of them suffered to remain, though they stand not more than six or eight inches from each other; for when the tops have room to spread
and

and wax large, the roots will increase in proportion; and it is well known to those who make observations on the growth of turneps, that, when the roots of two plants, thus situated, swell out till they touch each other, they become flat on the side in contact, but continue to spread on every other side, as if not incommoded by their contiguity; which, indeed, has one good effect: for, in endeavouring to preserve their rotundity, they force each other into a heeling posture, thereby giving their tops more freedom of expansion; and it seems to be an undoubted fact, that the vigour of a given plant will ever keep pace with the size and number of its leaves.

This leads us to a general rule for ascertaining the proper distance of turnep plants; which ought to be such as will give them room to keep themselves in a state of vigour and full growth; without leaving any space of ground unoccupied by, or thinly filled with, leaves.

And this leads us round to the first position,—that the distance ought to be in proportion to the state of the soil and the time of sowing.

For, supposing a root of six inches diameter to require a space of twelve inches square,
to

to diffuse its top in, the top of a root of ten inches would be crowded in the same space; while one of a smaller size would leave the vacancy unfilled. And as turneps in this District, now, run from four to eight inches in diameter, twelve inches may be taken as a proper *medium distance*.

To talk of *precise distances*, of turneps sown broadcast, would be ridiculous, and bespeak a want of knowledge of the subject: if a piece of turneps be examined after hoing, though done by a workman, the variety of distances is endless; scarcely any two interspaces being the same.

4. With respect to the SECOND HOING, little can be said; the first being a guide to this: the main purport of it is to loosen the mould, and draw it in some measure to the roots of the plants; to reduce the weeds effectually; and to single such plants as have been left double by the first hoing; as well as to remove such as have been missed; or, having been buried in the loose mould in moist weather, have struck root again in improper places.

It would be well, if at the time of the second hoing some of the supernumerary plants could

be transplanted into the vacant patches, in the manner that rape plants are usually done. This, however, cannot be practised with profit: turnep plants may be got to live, but not to thrive after transplantation. Does it not, therefore; behove the turnep grower to see, that, in the first hoeing, no artificial vacancies be added to those, which too frequently abound, accidentally, or for want of a proper quantity of seed, in almost every turnep ground?

On the contrary, a supernumerary plant may be removed on a certainty, and without additional labour or expence; for the stroke which loosens the soil, and eradicates the remaining weeds, displaces a supernumerary plant. Is it not, therefore, unpardonable management to set out the plants too thin the first hoeing?

The workmen, some farmers, and theorists in general, hold out a plausible idea, which has some small degree of truth in it: namely, that if the plants are not set out regularly the first hoeing, they cannot afterwards be regulated.

This, in rows of drilled turneps, would have some weight; *provided* every plant which was left could be insured to *live*, and become a *thriving plant*. But, in a field of turneps sown

at

at random, there is no such thing as regularity of distance ; and, here, the notion has little or no foundation.

Nor is regularity here necessary : for, supposing nine plants to grow in a yard square, it appears to me a matter of small consequence, whether they stand exactly a foot apart ; or whether some of them be fifteen and others only nine inches asunder ; provided they be so distributed, that their tops fill up a square yard of space above them : for, in the same manner as the tops of plants seek out for air and head-room above, in a similar manner do their roots seek out for food and moisture below.

I grant, that if I had my choice, I would prefer an exact regularity of distance ; but I would much rather forego the mental gratification, than give up three or four turneps in a yard square of ground.

Upon the whole, it strikes me, that the object of the first hoeing, instead of being that of setting out the plants at exact and wide distances, should be merely that of checking the weeds, and thinning the plants, to prevent their crowding each other ; and that the regulation of distances should be left in a great measure to

the last hoing: in the first, (*by reason of the many accidents young turnep plants are liable to*) it is a work of hazard and uncertainty; in the second, not only proper distances, but proper plants, may be chosen, with a degree of certainty and safety.

With respect to timing the second hoing, it ought to be given before the leaves become too large, to prevent the plants from being properly singled and set out, or the weeds from being effectually cleared away; but the longer they stand before the last hoing, the more effectually will the weeds be overcome.

5. The length of the HOE should be in proportion to the *medium distance* between the plants, and *this* to their *expected size*.

The Norfolk hoes are, at present, out of all proportion to the present size of plants; and, consequently, out of proportion to the proper medium distance. I have measured them nine inches and a half; there are many, I believe, of ten inches long: too long, in my opinion, for any turneps I have seen in Norfolk, by at least two inches.

It is the hoer's interest to work with a long hoe; for in a soil free from obstructions, the
larger

larger the hoe the quicker he gets over the ground, and the fewer plants he has to set out; but unfortunately for the inattentive farmer, his interest is, in this case, in direct opposition to that of his workmen.

There are, however, as has already been observed, some good farmers who pay proper attention to their turnep hoers, and who are well aware that a little attention, and a shilling an acre extraordinary, bestowed upon the hoings, is no object when compared with the difference between a "thight" and a thin crop of turneps;—between a crop worth forty shillings, and one worth four pounds an acre. The expence of rent, tillage, manure, and seed is, in either case, the same.

6. The present PRICE is six shillings an acre for the two hoings, which are almost always let jointly: if they be separated, the first is from three shillings and sixpence to four shillings; the last from two shillings to two shillings and sixpence.

These are low prices when compared with those of other countries, where eight shillings, ten shillings, or twelve shillings, an acre, are given for the two hoings. But there are two

reasons for this disparity. In Norfolk every countryman is a turnep hoer, and is generally expert, compared with those of other places; where hoing turneps is a mystery, known only to gardeners, and a few individuals who, though inexperienced, have it in their power to make their own prices. The other is the friability of the Norfolk soil, and its freedom from obstructions; while soils, in general, are either in themselves stubborn, or contain stones or other obstructions of the hoe.

8. The APPLICATION. Turneps are either cultivated

For seed,
For sale, or
For consumption.

1. SEED.—Many farmers raise their own seed: though this is not a general practice; yet most good farmers, who are curious in their stock, either raise it themselves, or have it raised from their own stock by a labourer or other neighbour.

The Norfolk farmers are masters in the art of raising turnep seed, in which, as in many other subjects in husbandry, their ideas are remarkably clear and accurate. It is generally understood,

understood, in other parts of the kingdom, that no turnep seed is fit to be sown, which has not been raised from transplanted roots. But not so in Norfolk, where seed is frequently raised from untransplanted turneps.

It is a fact well understood by every husbandman, here, that if the seed be gathered repeatedly from untransplanted roots, the plants from this seed will become "coarse-necked" and "foul-rooted;"—and the flesh of the root itself will become rigid and unpalatable. On the contrary, if it be gathered, year after year, from transplanted roots, the necks will become too fine, and the fibres too few; the entire plant acquiring a weak delicate habit, and the produce, though sweet, will be small. For the neck, or on-set of the leaves being reduced to the size of the finger (for instance), the number and size of the leaves will be reduced in proportion; and in a similar proportion will the number and size of the fibrils be reduced.

From a parity of reasoning it may perhaps be inferred, that when the neck acquires a thickness equal to that of the wrist, the size of the root will be in proportion.

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With respect to the *fibres* or rootlings, this is a just inference ; but with respect to the *bulb*, it is in great measure erroneous. For a few generations the size of the bulb will keep pace with the increase of leaves and fibres ; but after having once reached the limits, which nature has set to its magnitude, it begins to revert to its original state of wildness, from which to its present state it has, beyond dispute, been raised by transplantation.

The farmer has therefore two extremes, both of which he ought to endeavour to avoid. The one is discoverable by the thickness and coarseness of the neck, the scaly roughness of the top of the bulb, the thickness of the rind in general, the foulness of its bottom, and the forkedness of its main or tap root : the other, by the slenderness of the neck, the fineness of the leaves, and the delicacy of the root. The former are unpalatable to cattle, and are thereby creative of waste : the latter are unproductive ; are difficult to be drawn ; and do not throw out such ample tops in the spring, as do those which are, by constitution or habit, in a middle state between those two extremes.

There

There is not, however, any general rule respecting how many years turneps ought to be transplanted successively, and how often they ought to be suffered to run up from the seed bed: the soil and situation have, and other circumstances may have, influence on the habit or constitution of vegetables, as of animals; and the farmer must attend alone to the state of the turneps themselves. Whenever he judges that by repeated transplantation they have passed the acme of perfection, have passed that height to which nature has said, "So far shalt thou go, and no farther," then it is his duty and interest to let them run up to seed without transplantation.

In Norfolk it has been found from long experience, that transplanting two, three, or four years, and letting the plants run up the third, fourth, or fifth, will keep the stock in the desired state.

The time of transplanting is from old Christmas to old Candlemas.

In the choice of plants, the farmer is not guided by size; but "picks the cleanest plants," without regard to the size: or, more accurately speaking, he makes choice of such

as are near, but not at, or above, the state of perfection. In almost every piece of turnep there are plants in various states: much judgment, therefore, is requisite in the choice of plants.

The choice of soil and situation for this purpose is pretty uniform; a piece of good ground, near a habitation, being generally pitched upon.

But *the method of planting* is various: the plants are generally set in rows: but the distance between the rows, and between plant and plant in the rows, is uncertain. I have measured the rows sixteen or eighteen inches apart, and the plants eight or ten inches asunder. I have also observed them planted in two-foot rows, and twelve inches in the rows. But the practice of a man who indisputably stands near the head of his profession, is to plant them in rows about two feet asunder, without any intermediate space in the rows; in which the plants stand in contiguity.

The vegetating process consists in keeping the intervals clean-hoed; and when the seed verges towards ripeness, in preserving as much of it as possible from birds. If the plot be large, a
boy

boy is generally employed to scare them. — When the plot has been small and near the house, I have known a simple expedient used for this intent with success. On a slender post, rising in the midst of the patch of seed, was fixed a bell; from which a line passed into the kitchen; in the most frequented part of which hung the pull. Whoever passed the pull, rung the bell; so that in a farm-house kitchen, where a mistress and two or three maids were some of them almost always on the foot, an incessant peal was kept up; and the birds, having no respite from alarms, forsook their prey.

2. SALE. It is not a practice among the generality of farmers to raise turneps for sale; nevertheless there are every year more or fewer sold. Little farmers, who want convenience or skill, and larger ones who want money to lay in a proper stock, or who from the prices of stock and turneps, comparatively, judge it more eligible to sell than to “graze,” — sell their turneps to those who have judgment, money, and spirit to buy stock.

Sale turneps are usually consumed on the premises they grow upon. Sometimes the
buyer

buyer and sometimes the seller draws the crops, and tends the cattle; for which sometimes the one and sometimes the other finds straw.

The medium price of a middling crop of turneps is about 50s. an acre; but the price is subject to great and sudden fluctuations; as will appear in MIN. 68.

3. CONSUMPTION. This is the grand purpose for which the turnep crop is principally cultivated.

Turneps are almost universally "pulled;" that is, drawn up by the roots. The practice of hurdling them off with sheep, as they stand, the almost only practice of other countries, is not in use in East Norfolk. I do not recollect to have observed one instance of this practice, unless when the turneps were very small, or very thin.

But the Norfolk practice is not more singular with respect to the mode of application, than with respect to the species of stock to which turneps are applied. In most places SHEEP are the chief consumers; but, here, CATTLE are almost the only object of the turnep culture. I speak more particularly of the practice of *this* District: in which, as I have before

before intimated, the genuine system of Norfolk husbandry is practised.

There are three ways of *harvesting* the turnep crop :

A. Drawing and carting-off the whole crop.

B. Drawing and distributing the whole over the turnep-ground.

C. Carting off half, and distributing half.

The two last, however, are in use only where sheep are the sole or joint consumers. The first, therefore, may be called the general practice : and it is probable that nine tenths of the turneps grown in East Norfolk are harvested in that way.

A. CARTING-OFF THE WHOLE. This process merits a minute description.

a. *The time of drawing* commences about Michaelmas, and continues until the plants be in blow.

b. *The process of drawing.* This, in severe weather, is an employment which nothing but custom could reconcile, to those whose lot it is to go through it : namely, stout lads and youths ; whose hands are frequently swelled until the joints are only to be discerned by the dimples they form ; nevertheless, I have not heard

heard an instance of ill consequence from this circumstance.

Their method of pulling, when the tops will bear it, is very expeditious: they pull with both hands at once; and, having filled each hand, (one on one side of them, the other on the other) they bring the two handfuls together with a smart blow, to disengage the soil from the roots; and, with the same motion, throw them jointly into the cart.

If the tops be cut off by the frost, or if this be in the ground, they are pulled with "crooms"—two-tined hooks.

If a deep snow bury the roots, it is removed with the snow-sledge (see IMPLEMENTS).

It is customary to begin pulling under the hedges, clearing the headlands and sidelands first; and then, if the whole crop be carried off, to begin on one side, and clear the ground progressively for the plow.

If the area be broken into,—a lane is made for the horse and cart, by drawing the turneps; and, while their tops remain succulent and valuable, setting them in double handfuls on each side the road; by which means the tops are preserved as free from dirt and taint,

taint, as if the handfuls were thrown immediately into the cart.

It is customary, in drawing turneps, to clear them away entirely, great and small: I met with one instance, however, and that in the practice of a good husbandman, of the small ones being left upon the ground: not more to encrease in size, than to throw out tops in the spring; it being observable, that a small turnep sends up a top nearly equal to that of one whose bulb is larger. There is one inconveniency arising from this practice: the plow is prevented from entering upon the soil until late in the spring; and this, upon some soils, is an unsurmountable objection. Upon land, however, which will bring good barley with one plowing after turneps, it may be very eligible management.

c. The method of giving them to cattle. This is threefold.

First, They are thrown on stubbles, grass-lands, and fallows, to cattle abroad in the fields.

Second, They are given in bins, in the strawyard, in which the cattle go loose.

Third, They are given to cattle tied up in houses or under sheds.

The

The *first* is the prevailing practice: perhaps, three fourths, or perhaps, a greater proportion, of the bullocks fatted on turneps, in this District, are fatted abroad in the fields.

The general practice is to begin with the wheat stubbles; on which turneps are usually thrown, until they be broken up for fallow for barley. The next throwing ground is frequently the barley stubbles, which receive the bullocks as the wheat stubbles are scaled in, and retain them until they, in their turn, are broken up for turnep fallow. From about Christmas until the beginning of April, the clover lays, only, are thrown upon: and after these are shut up, (in order to acquire a bite of ray grafs for the unfinished bullocks,) the turnep fallows, sometimes, become the scene of throwing.

These rules, however, are not always strictly observed: some farmers objecting to throw turneps on land intended for turneps the ensuing year, under an idea that it is productive of the Anbury. In this case, the clover lays succeed the wheat stubbles, some part of them being kept open until the turnep crop be finished in the spring. Young clovers are
some-

sometimes thrown upon ; but this is seldom done, unless there does not happen to be a clover stubble in the neighbourhood of the turnep piece ; and even then, it is considered as bad management ; unless the season be very dry, and the surface sound.

In a wet season, the Norfolk farmers, even on their dry soil, are sometimes put to inconveniences for clean ground to throw upon ; and, notwithstanding the value of teathe, when the land will bear the bullocks, I have known a farmer ask leave of his neighbour to let him throw turneps upon an adjoining piece of sound olland ; rather choosing to lose his teathe than check his bullocks.

Hence, in laying out a Norfolk farm, it is proper to endeavour to intermix the crops in such a manner that a piece of turneps shall have, at least, two pieces of lay in its neighbourhood.

The method of throwing turneps is similar to that of setting on manure ; the carts beginning on one side of a close, and working regularly to the other ; giving every part an equal share ; and never throwing twice in the same place, until the whole has been gone over.

At the beginning of the throwing season, while grass is still in plenty for lean stock, it is usual to keep the fatting cattle constantly in the same piece of wheat stubble, giving them a fresh supply of turneps every day, or every two days at farthest.

But the clover stubbles being cleared from grass, and the store beasts beginning to want assistance from turneps, the fatting cattle have their "followers,"—that is rearing cattle :—lean bullocks, cows, or store sheep follow them to pick up their leavings.

In this case it is convenient to have three "shifts," namely, three pieces of throwing-ground, going on at the same time :—one for the head beasts, one for the followers, and a third empty to throw in. Two pieces, or two divisions of the same piece, are indispenfibly necessary.

Sometimes a row of hurdles is run across a throwing piece to divide the "bullocks" from the "followers;" and I have known a boy employed for the same purpose.

Good farmers are very attentive to having the turneps thrown evenly and thinly; it being a maxim, that while a bullock is breaking one turnep,

turnep, he should not have it in his power to tread or dung upon another. This, however, is seldom effectually guarded against. If turneps be scattered a yard asunder, they are not ill thrown: it is too common to see them thrown in "rucks" and "ringes" by half dozens together.

They are thrown by hand, by a boy standing in the cart, which keeps going on as he throws them out,—with their tops and tails on, as they were drawn out of the piece.

Bullocks at turneps abroad, are sometimes, when the distance is not too great, driven into the strawyard at night;—and sometimes have a little straw given them under the hedge of the throwing piece, where they sleep, entirely abroad. See MIN. 69.

The quantity of straw carried to them is very small; being meant merely to "clean their mouths" from the dirt of the turneps; which, alone, are depended upon for bringing the cattle forward.

It is indeed an interesting fact, that not one in ten of the high finished bullocks, which are annually sent to Smithfield market out of Norfolk, taste a handful of hay; or have any other

food, whatever, than turneps and barley straw ; excepting such as are finished with ray grafs in the spring ; and excepting some few fatted by superior graziers, who make a point of giving their bullocks at turneps a little hay, towards spring, when the turneps are going off, before the ray grafs lays be ready to receive them. An excellent practice, this, which ought, if possible, to be universally copied : for without this precaution, bullocks are liable to receive a check between turneps and grafs.

The *second* method of fattening cattle with turneps is, to keep them in a loose strawyard ; giving them turneps in close bins ; namely, a kind of small cowcrib with boards, or bars nearly close, at the bottom.

These bins are distributed about the yard, and the turneps usually put into them whole ; but, in this case, they are always “tailed”—that is, have their tap-root lopped off—in the field ; and, unless the tops be fresh and palatable, they are usually “topped-and-tailed,” giving to the fattening bullocks the bulb only ; the tops, if eatable, being given to store cattle.

Bullocks in the yard have sometimes their straw given them in cribs, and sometimes have
it

it scattered in little heaps about the yard, two or three times a day: the quantity of it eaten is in either case small; and, with the latter management, the yard becomes evenly littered without further trouble.

This method of fattening bullocks on turneps is somewhat more troublesome than that of throwing to them abroad; which, if the soil be dry enough to bear stock, and light enough to require “jamming,”—is, perhaps, upon the whole, the most eligible management: but in a deep-land situation, and in a wet, or a severe season—the yard, if it be kept dry and well littered, is the more comfortable place; especially if it be provided with open sheds for the cattle to take shelter under in inclement seasons.

The teatime of bullocks abroad is no doubt highly serviceable to land; especially to a light soil; while bullocks at turneps in a yard well littered make a great quantity of good manure.

The *third* method is to keep the cattle tied up in hovels, or under open sheds, with troughs or mangers to receive the turneps; which, in this case, are frequently “chopped;”

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that is, cut into *slices*; or more generally, though perhaps less eligibly, into *quarters*, with a small hedging bill, or other chopper, upon a narrow board or stool, with a basket underneath to catch the pieces as they are chopt off. The turnep in this operation is held by the top; which, when wholly disengaged from the root, except the coarse part immediately about the crown, is thrown aside for the store cattle. The tap root and bottom rind are sliced off with the first stroke, and suffered to drop on one side the skep; so that the fatting cattle, in this case, have only the prime part of the bulb.

This accounts for the quick progress which “shed bullocks” sometimes make; especially in cold weather. But on account of the extraordinary attendance they, in this case, require,—not only in cutting the turneps, but in littering and cleaning out their stalls,—besides the checks which they are liable to receive in close muggy weather—the practice is seldom followed by large farmers in *this* District; unless to push forward some particular individuals.

Among little farmers, who have leisure and inclination to tend their own sheds, the practice

tice is not uncommon ; and much depending on care and management in this business, they may, probably, find their account in it. Under this treatment, the cattle have a little barley straw given them, from time to time, to clean their mouths, and dry up the superfluous juices of the turnep.

Sometimes shed bullocks are “blown up” with pollard and barley meal ; but this is considered as an unfair practice by the butchers in Smithfield, who prefer turneps and hay in winter, and ray grafs in the spring, to every other kind of fattening.

In the southern Hundreds of this District, the soils of which are, in general, too tender to bear cattle with propriety in a wet season, the yard and the shed are more common receptacles of bullocks than they are in *this* neighbourhood.

In Blowfield Hundred, a commodious but expensive shed prevails : it has one main advantage over the little hovels in which bullocks are sometimes cooped up : the lofty, spacious area in which the bullocks breathe, affords them a plentiful supply of fresh air, and keeps their bodies in a due degree of temperature.

For a description of one of these sheds, see MIN. 118.

B. DRAWING AND DISTRIBUTING THE WHOLE CROP OVER THE TURNIP GROUND. This being only in use where a large flock of sheep is kept and few bullocks are fatted, it is seldom practised in East Norfolk. It differs from the ordinary method of hurdling off turneps, in that the sheep, instead of being put upon the plants as they stand, are kept back upon the cleared ground, upon which the turneps are thrown. But as, in this case, the turneps must either be thrown in part over the ground already fouled by the sheep; or be confined to a space similar to that off which they are drawn;—by which means the principal intention of drawing is frustrated;—a third method of harvesting has been invented: namely,

C. CARTING OFF HALF AND DISTRIBUTING HALF. This ingenious method is, I believe, of modern invention; and is now chiefly practised by a few capital farmers, who fat large quantities both of cattle and sheep.

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In this case, the headlands and sidelands being cleared, the area is drawn and carried off, warp for warp; leaving the piece in stripes, about ten paces wide.

The first drawing is expended on the bullocks in one or other of the ways already described; while the remaining stripes are drawn and scattered over the entire ground for sheep.

By this means the principal intention of drawing is obtained; namely, that of distributing the turneps evenly and thinly; so that while one is eaten, another may not be soiled: a principle which, it may be taken for granted, is well founded; as it is strictly and invariably attended to by good farmers in general.

This advantage, however, does not appear to me to be the only one obtained by drawing turneps for sheep in the fold.

When a flock of sheep are turned upon a shift of standing turneps, the first thing they do is to run over the whole; and, then, to eat such of the tops as they have not trampled down in running over them. While they are doing this, they stand upon the roots: which, being firm in the ground, and flat on the
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the top, are no way inconvenient to stand upon. But what is worse, if the foot happen to fall near the edge of the turnep, the sharpness of the hoof, and the fixed situation of the root, renders it liable to be barked, as well as fouled, and rendered unsavory to this fastidious animal.

On the contrary, if sheep be put upon drawn turneps, their tops may be in some measure injured, but their roots cannot; for being round, and lying loose upon the surface of the ground, they afford no foothold to stand upon. And, if the hoof be put upon the edge, the turnep rolling with the slightest touch, the foot slips, and the hind is saved. Thus the roots in this case, instead of being footstools become stumblingblocks to the sheep; who, carefully avoiding the turneps, stand, in this case, entirely upon the ground; which, under these circumstances, is left almost wholly free for their feet; the turneps touching it with a small portion of their circumferences only; whereas, in their natural state of growing, they occupy a considerable portion of the surface.

For

For observations on *steeping the seed*, and *sowing*, see MIN. 3.

For observations on the *turnep caterpillar*, see MIN. 12.

For observations on the *grub* and *Anbury*, see MIN. 20.

For an instance of the "*fly*" being checked by the sheepfold, see MIN. 21.

For preventatives of the *Anbury*, see MIN. 22.

For experiment with *lime* for turneps, see MIN. 29.

For the *quantity* of turneps eaten by bullocks in the yard, and calculation on their *produce value*, see MIN. 56.

For an incident respecting the "*proof*" of turneps; and reasons accounting for it by a particular *soil process*, and *close being*, see MIN. 57.

For a simple way of *preserving turneps* in winter, and reflections upon it, see MIN. 61.

For instances of the *price* of turneps, see MIN. 68.

For comparative observations on *shed* and *gut-deer* bullocks, and on the practice of individuals

viduals in fatting *bullocks* on turneps, see MIN. 69.

• For a particular *feed process*, see MIN. 71.

For the practice of sundry *individuals* in the consumption of turneps on *store cattle*, see MIN. 74.

• For an opinion respecting the great use of turneps to *cows* in the spring, see MIN. 83.

For a description of the manner in which *bullocks break* their turneps, see MIN. 84.

• For observations on the expenditure of turneps in *Fleg*, see MIN. 106.

For further observations on the turnep *Caterpillar*, and of the *Tentredo* which produces them, see MIN. 122, 124, 129, and 132.

For further observations on the *application* of turneps, see the article *BULLOCKS*, and the MIN. from thence referred to.

34.

CULTIVATED GRASSES.

UNDER THIS HEAD it will be proper to consider,

1. The species,
2. The foil,
3. Succession,
4. Seed process,
5. Vegetating process,
6. First-year's lay,
7. Second-year's lay.

I. SPECIES. The cultivated grasses of this District are,

Darnel,—*lolium perenne*,—ray grass;

Clover,—*trifolium pratense*—red clover;

Suckling,—*trifolium repens*—white clover;

Black nonsuch*,—*trifolium agrarium*,—trefoil hop clover,—or yellow clover;

Suffolk grass,—*poa annua*,—dwarf meadow-grass.

* By "black nonsuch" is meant trefoil in the husk; in contradistinction to darnel, which is frequently called "white".

The first two are the principal grasses sown in the regular course of husbandry; but generally with some admixture of the third or fourth species: the last is sown only when a perennial lay is intended; a thing which is seldom attempted in this District.

A new species of productive nutritive grass would be very acceptable to the husbandry of Norfolk; whose lands, to use the provincial phrase, are "tired of clover*."

If we consider the length of time which clover has been successively sown on the Norfolk soil, this circumstance is not extraordinary; as it has likewise taken place in Districts where the cultivation of clover is a more modern practice than in Norfolk; where it has been cultivated time immemorial.

A small inclosure near Aylesham is shewn as the first piece of land which bore clover in

"white nonsuch." Trefoil seed freed from the hulk, is called "hulled nonsuch."

* I made a trial of ribgrass (*plantago lanceolatus*), but gained no credit from the experiment: for although this grass be sown in considerable quantities in some parts of the kingdom, it is in Norfolk considered as a weed: the fact is, horses do not affect it; and these are the principal consumers of the clover-crop, in this country.

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this District. But even this circumstance is now become merely traditional; no person now living being able to speak to it with certainty.

It is observable, however, that land, though it be no longer the favorite of clover, will bring up the seed perfectly well; and, if the plants are not cut off in their infant state, will support them through the winter, with vigour and apparent healthfulness. But in the spring, when the plants begin to want a more ample supply of nourishment than the soil is enabled to furnish them with, they droop and dwindle, and frequently, in a few weeks, entirely die away.

Even on the freshest soils, clover seldom stands more than one year; going off entirely the second spring; leaving the darnel (unless some other grass be sown) in full possession of the soil.

This circumstance, however, is no great inconvenience, in the present system of Norfolk husbandry: if the clover afford a sufficiency of herbage and hay, the first year, its chief duty is done: ray grass having been found, from long experience, to be of all other grasses, yet cultivated, the best for finishing turneped bullocks

bullocks in the spring; not only as being early and productive; but as being of an uncommonly "forcing," that is, fattening nature.

Its duration, however, is transient; and suckling, or other summer grass is useful to keep up a bite for the store cattle, until the second-year's lays be broken up for the wheat fallow.

II. SOIL. They are sown indiscriminately on every species.

III. SUCCESSION. They are raised almost invariably with barley after turneps: sometimes, but not usually, they are sown over wheat after turneps.

IV. SEED PROCESS.—I. THE TIME OF SOWING grass seeds is somewhat singular. It is not immediately after the sowing of the barley; nor after it is up; but generally, between the sowing of the barley and its appearance above-ground.

This, on a dry soil, and especially in a dry season, appears to a stranger extraordinary management; and why the moisture which is
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turned up to the surface by the seed-earth of the barley should be suffered to evaporate before the grass seeds are lodged among it, is rather inexplicable ; unless it be intended to gain a fresh advantage over the root weeds which have been harrowed up in covering the barley.

Or, perhaps, the practice has been established on a still broader basis. It has, perhaps, been found, from long experience, that the moisture turned up by the seed plowing of the barley, is, sometimes, sufficient to bring the grass seeds into a state of vegetation, without being able to support them through a continuance of dry weather : whereas by suffering the surface mould to dry before the seeds be sown in it, they lie in a state of safety until rain falls ; while the barley, being buried deeper, gets up to shade the tender seedlings ; and at the same time gets, as it ought to do, the ascendancy of the grass seeds.

2. PREPARATION OF THE SEED. I did not meet with an instance of any preparation being made use of, in this District.

3. METHOD OF SOWING. The different sorts are usually mixed and sown together ;

the quantity of ray grass being small; the seedsmen taking care to stir them up, from time to time, to prevent the smallest and heaviest from settling at the bottom of the bowl or hopper.

4. QUANTITY OF SEED.—This varies with the quality of the seed, and the opinion of the farmer: half a peck of ray grass! and *to the amount of* twelve or fourteen pounds of clover, an acre, may be taken as the medium quantity: if two or three pounds of suckling, or three or four pounds of "hulled nonsuch," or a proportional quantity of "black nonsuch," be sown, the quantity of red clover is proportionably less.

5. The seeds are generally COVERED with a pair of small harrows, drawn backward to prevent the teeth from tearing up the clods, disturbing the barley, or burying the grass seeds too deep.

V. VEGETATING PROCESS. The "young seeds" are studiously kept from *sheep* the first autumn and winter. They are, however, *eaten* freely with young stock and other store *cattle*; and for convenience have sometimes turneps
thrown

thrown upon them : but this, as has been observed, is not a general practice ; nor is it esteemed a judicious one ; unless the soil be very firm and the season dry. They are sometimes *top-dressed* in winter, with dung or compost ; but this is a practice confined to a few individuals. In the spring of the first year, they are universally *stonepicked* ; but, extraordinary to relate, they are rarely, if ever, *rolled* either the first or the second spring.

VI. FIRST-YEAR'S LAY.—I. This is generally SHUT UP in the month of April, and either suffered to stand for hay, or is pastured, or roped upon, by the working horses. See HORSES.

2. CLOVER HAY is mown with the same *sithe*, and is lifted or turned in the same manner, as BARLEY. The great singularity respecting the treatment of clover hay, in Norfolk, consists in its being universally made into large cocks, as soon as it is weathered enough to prevent its damaging in these cocks ; in which it frequently stands a week, or, perhaps, a fortnight.

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By cocking it in this manner, before it becomes too crisp, the leaf and the heads are saved; but heavy rains sometimes do it great injury in this state. From slighter rains and transient showers it is, however, much safer in these large cocks (four, five, or six of which will generally make a load), than in swaths; whose surfaces being large in proportion to their bulk, and their situation being low, are liable to receive damage from every shower; while the surfaces of large cocks are comparatively small, and, their situation being elevated, the wet is licked up by the first breeze of wind.

Clover is seldom mown more than once; except for seed; the second crop being usually eaten-off with store cattle; for which the clover stubbles are necessary receptacles, after the ray-grass lays are broken up for wheat.

3. RAISING CLOVER SEED is not a practice of this District. The principal part of that which is sown in it is raised in Suffolk, and the Suffolk side of Norfolk; the quantity saved in this part of the county being small, compared with the quantity sown. See MIN. 101.

VII. THE

VII. THE SECOND-YEAR'S LAY. This is invariably pastured (unless some small share be suffered to stand for darnel seed); the spring shoot being usually expended in "topping up" turneped bullocks: for which purpose no other vegetable, perhaps, is superior to ray grass.

Store cattle follow the bullocks (which generally are all sent to Smithfield by the middle of June), and keep possession of the second-year's lays, until they be broken up for wheat, in July, August, September, or October; agreeably to the SOIL PROCESS made use of for WHEAT; which see.

For an instance of sowing clover in autumn, see MIN. 24.

For an account of Norwich clover-seed market, see MIN. 101.

For a singular effect ascribed to clover, in Fleg, see MIN. 106.

35.

NATURAL GRASSES.

IN DESCRIBING the management of the different kinds of GRASSLANDS, it will be necessary to treat separately of each SPECIES, namely,

1. Grazing grounds,
2. Meadows,
3. Marshes,
4. Fens,

I. GRAZING GROUNDS.—If we except the parks and paddocks of men of fortune ; who, through economy or fashion, have, in general, disparked their deer, and converted their parks and paddocks into sheep-walks and grazing grounds ; we find very little upland grass in *this* District : I recollect only one piece, of any extent, in the occupation of farmers.

There are two causes of this scarcity of natural grassland : the soils of this neighbourhood,
and

and of the entire county, taken in a general point of view, are of a quality ungenial to the native grasses. If a piece of arable land be laid down to grass, in the course of a very few years it becomes mossy and unproductive, and calls aloud for the plow and harrow.

The other is, the high price which corn bore a few years ago. This urged the farmer to increase his arable land to the stretch: not only **UPLAND** grass, but even bogs appear to have been subjected to the arable process; though, in their present state, too moist and chilly to bear even the finer grasses; much more to support and mature profitable crops of corn.

This is far from being intended as a general censure of the anxiety of the Norfolk husbandmen to increase the quantity of arable land; for I am of opinion, that there is scarcely an acre of land in the county which is not worth more under the Norfolk system of aration than it would be in any other state; *except* the **MEADOWS**, the **MARSHES**, and the **FENS**; which I am equally clear in opinion ought to be improved as grassland, or as sources of turf, reed, oziers, sedge, or other aquatic and palustrine productions; and ought not, under any

pretence whatever, to be attempted to be reduced to arable land.

II. MEADOWS. The species of grassland which passes under this denomination in Norfolk, is confined to those bottoms, or vallies, which accompany, almost uniformly, the rivulets which abound in East Norfolk.

These vallies vary in width and depth. In some places the bed of the rivulet is sunk deep and narrow, in an almost level surface; so that the arable land comes down to its brink; in others, the valley is wide, and the bottom flat; and, in this case, the sides of the valley are sometimes low with an easy swell, sometimes bold and lofty: *this* however is seldom the case; the Norfolk meadows in general lying in gentle dips a few feet below the level of the upland, and from half a furlong to two or three furlongs wide.

These dips, gentle as they may be, subject them, in general, to a pernicious redundancy of subterranean moisture.

The Norfolk soil, in general, is, as has been repeatedly observed, of a nature unusually absorbent; drinking up rain water as fast
as

as it reaches the earth: a flood is seldom heard of in Norfolk. The waters thus absorbed are liable to be obstructed by beds of marl and clay: if an obstruction take place on the verge of a valley, the waters obstructed ouze out, or attempt a passage, on its sides; or rise, or attempt to rise, out of its base. Thus, land-springs, quicksands, hanging tumours, and bogs, occur in almost every meadow: and where none of these actually take place, a coldness usually prevails in every part of the area (except in very dry seasons); owing to the lowness of the situation, compared with the neighbouring upland; whose absorbed waters, though they sink beneath the corn-mould, and though they may meet with no particular obstruction, yet, in a wet season, are, in all human probability, collected, more or less, at the depth of a few feet below the surface.

Be this as it may, the chilness which prevails in the lower parts of the meadows, destroys or checks the better grasses, and produces or encourages alders, sedges, rushes, and the whole tribe of palustrean weeds: while
the

the upper margins are productive of furze, fern, and anthills.

Such, from situation, is the *natural state* of the Norfolk meadows; and sorry I am to add, that, with a few exceptions, *such is their present state.*

Admirer as I am of the arable management of this country, and cautious as I wish to be of censuring, without cause, any department of its rural economy; I cannot refrain from condemning, in full terms, its grassland management.

Having, however, minuted my sentiments on this subject, as they occurred from time to time, in the course of my observation or practice; I shall, in this place, only give a sketch of the present management, such as it is, and draw what appears to me the general *outline* of improvement.

In winter, or towards spring, when the land-springs are flowing and the bogs full of water, a few paltry grips are, sometimes, made across such parts of a meadow as are no longer able to bear pasturing stock: these grips being usually run in a perpendicular direction, from the rivulet toward the upper margin.

But,

But, frequently, even this is omitted; or, if once done, is so long neglected, that its effect is lost.

Besides this faint attempt at improving the substratum, the rushes and other tall weeds on the surface are *sometimes* swept down with the fithe;—and sometimes left to enjoy their natural right.—Thus much as to *improvements*.

With respect to the *uses* to which these morasses are applied, they are principally confined to that of keeping young cattle from starving: cows are sometimes trusted in them; but in general their surfaces are too rotten, and their herbage too rank for this species of stock: and common prudence, resulting from dear-bought experience, generally prevents the farmer from trusting either his sheep or his horses in his “meadows;”—lest the former should be subjected to the rot, and the latter be smothered in the peatbogs.

When the young cattle have picked out the little grafs they can find,—the sedges and other aquatic weeds of the bogs are sometimes mown, and carried off by hand, for litter; and sometimes suffered to die and rot on their native bogs, whose depth is thereby annually increased.

creased. Upon the sounder better parts, the rushes and rough grass are, sometimes, made into a kind of coarse hay, for winter fodder for store cattle.

The common rental price of meadow land is, from five shillings to ten shillings an acre; and, in their present state, it is their full rental value; taking one year with another: in a very dry season they are frequently, on a par, worth ten shillings an acre to a farmer; pasturage of any kind being, in that case, singularly valuable in Norfolk; but, in a common year, they are not, in their present state, I apprehend, worth, on a par, more than seven shillings an acre.

If we consider the natural situation, and the present state of the Norfolk meadows, the following IMPROVEMENTS spontaneously offer themselves.

1. DRAINING the surface and substratum from superfluous moisture.

2. CLEARING and LEVELLING the surface-mould, and increasing its contexture and FIRMNESS.

3. Improving the QUALITY OF THE PRODUCE, by GRASS SEEDS; or, by PLANTING.

4. In-

4. Increasing the QUANTITY, as well as the quality of the herbage, by MANURING and WATERING.

The last, namely WATERING, is a practice entirely unknown to the generality of Norfolk husbandmen. Indeed, until the surface of their meadows be adjusted, and the subterranean waters removed, a knowledge of the practice would be useless to them.

Without this advantage, great as it would be in addition, I will venture to assert, from an extraordinary attention to this subject, that the present rental value of the meadows of East Norfolk might be doubled; and this at the expence of one third of the improved value. I will venture to go farther, and give it as my clear opinion, that the meadow lands of East Norfolk, with a similar proportion of expence, might, on a par, be improved ten shillings an acre.

We have, in a former section, estimated the number of arable acres in Norfolk to be six hundred thousand. Supposing the proportion of arable to meadow land to be as twenty to one (ten to one would, perhaps, be a nearer proportion) the number of acres of meadow will be thirty thousand, which, at ten shillings an

an acre, is fifteen thousand pounds ; from which take one third for the expence of improvement, the remainder is ten thousand pounds, the neat annual improvement.

. If to the IMPROVEMENT of draining, &c. that of WATERING were added, in places where it is practicable, at a moderate expence, this annual increase might be very considerably augmented.

In a country where landed gentlemen are so minutely, and so strenuously, attentive to their own interest, it is astonishing they do not set about such *real* improvements as would, in the instant, render them respectable, and bring, in the end, a *durable* increase to their rentrolls; rather than continue to dwell upon those, which have already brought down so much distress upon their tenants, and obloquy upon themselves.

However, with respect to the improvement of meadows, the tenants are equally culpable with their landlords: even a twenty-one year's lease is not enough to encourage them to make the requisite improvement.

The fact is, the landlord and tenant are jointly interested; and the expence in this, as
in

in almost all cases of improvement upon a leased estate, ought to be joint. On granting a lease, the landlord ought to advance, or allow, some certain sum of money towards the improvement; which he, or his agent, ought to see executed, according to agreement, previously entered into by the tenant.

III. MARSHES. This species of natural grassland is, on the eastern side of the county, confined to the neighbourhood of Yarmouth; where an extensive tract of marshes lie on the banks of the Breydon; which, formerly, was probably, an arm of the sea, but is now a mere dilatation of the Yare; which, at Yarmouth, regains the river form. This valuable tract of land, with its present state and application, being fully described in MINUTE 118, it is unnecessary to dwell upon it in this place.

IV. FENS. Under this head I class the swampy margins of the rivers and lakes which abound in the southern part of this District.

Their natural produce is reed, gladdon*, sedge, rushes, and other aquatic and palustrean

* Gladdon—*TYPHA latifolia et angustifolia*,—cats-tail.

plants;

plants ; their upper sides being frequently out of the water's way, affording a proportion of grazable land : hence, probably, they are provincially termed " marshes." This, however, is not only contrary to the common acceptance of the term ; but the produce and principal use of a fen are totally different from those of a grazing marsh.

The profits of a fen arise, in general, from Reed and gladdon, cut for thatch, for buildings ;

Sedge and rushes, for litter ; and thatch, for hay and corn ricks, and sometimes for buildings ;

Coarse grass, for fodder, and sometimes for pasturage ;—and

Peat for fuel*.

The *last*, if made the most of, is a very valuable article,—as appears in MIN. 54.

* The proprietors of manors are also proprietors of the fish in such parts of those fresh-water lakes as lie within their respective manors ; and the right of fishing is frequently let off to men who make an employment of taking the pike (some of them of immense size) and other fish with which " the broads" abound.

The

The use and value of REED have been spoken to, amply, under the head BUILDINGS AND REPAIRS.

GLADDON is of a similar use, but less value; its duration being much shorter than that of reed.

The other articles require no explanation.

For an instance of burning *antbills*, see MIN. 6.

For an instance of a *grazing ground* being more nutritious to heifers than to steers, see MIN. 39.

For the Norfolk method of *opening drains*, see MIN. 44.

For the method of "gelding" *antbills*, see MIN. 50.

For general observations on Norfolk *meadows*, see MIN. 51.

For general observations on *fens*, see MIN. 54.

For a striking instance of the present bad management of *meadows*, see MIN. 65.

For the method of cutting *reed*, see MIN. 89.

For a striking improvement of *meadow land*, see MIN. 96.

For a description of the *Yarmouth marshes*, &c. see MIN. 118.

Besides these Minutes on provincial practice, I find some relating to a species of grassland, different from any of those above enumerated; namely, a young perennial lay; the herbage principally ray grass and white clover; the soil a tolerably rich loam; the situation cooler than that of Norfolk arable land in general; but warmer than what is called meadow; forming a suite of dairy grounds; which, lying round the house I resided in, fell immediately under my own eye; and the management of them was frequently conducted under my own directions. See MIN. 108.

For instance of profit by *mowing the broken-grass* of pastured land, see MIN. 7.

For an evidence of *sheep* being inimical to *cows*, see MIN. 8.

For the effect of the *shovellings* of a *sheepfold* upon grassland, see MIN. 10.

For an experiment on the *time of manuring* grassland, see MIN. 127.

36. CATTLE.

36.

C A T T L E.

IN TREATING of this species of live-stock, it will be proper to consider, separately,

1. The species, or breed.
2. Cows, and the management of the dairy.
3. Rearing cattle:
4. Bullocks, or fattening cattle.

I. THE SPECIES. The present breed of cattle, in this District, is not less peculiar to the country, than its breed of horses was formerly (see HORSES), and is strongly marked with the same leading characters.

The native cattle of Norfolk are a small, hardy, thriving race; fattening as freely, and finishing as highly, at three years old, as cattle in general do at four or five.

They are small-boned, — short-legged, — round-barrelled, — well-loined, — thin-thighed — clean-chapped; the head, in general, fine, and the horns clean, middle-sized, and bent

upward : the favorite colour, a blood-red, with a white or a mottled face.

The breed of Norfolk is the Herefordshire breed in miniature ; except that the chine and the quarter of the Norfolk breed are more frequently deficient.

This, however, is not a general imperfection. I have seen Norfolk spayed heifers sent to Smithfield, as well *laid up*, and as *full in their points*, as Galloway or Highland cattle usually are : and, if the London butchers be judges of beef, there is no better *fleshed* beasts sent to Smithfield-market.

These two qualifications ; namely, the superior quality of their flesh, and their fattening freely at an early age, do away every objection to their size and form. Nevertheless, it might be advisable to endeavour to improve the latter ; provided those two far superior qualifications were not by that means injured. But it might be wrong to attempt to increase the former, which seems to be perfectly well adapted to the Norfolk soil.

The medium weight of a well-fatted three-year-old is forty stone (of fourteen pounds each).

Bulls

Bulls of the Suffolk polled breed have, at different times, been brought into this District: and there are several instances of the Norfolk breed being crossed with these bulls.—The consequence is, an increase of size, and an improvement of form: but it is much to be feared, that the native hardiness of the Norfolk breed, and their quality of fattening quickly, at an early age, are injured by this innovation; which was first introduced by gentlemen, who, it is probable, were unacquainted with the peculiar excellency of the true Norfolk stock; and the mongrel breed, which has arisen from the cross, yet remains in the hands of a few individuals.

A few years ago, a Highland Scotch bull was brought into this neighbourhood, by a man who stands high in the profession of grazing; and who has crossed his own stock, of the true Norfolk breed, with this bull.—The produce of this cross proves, that if the genuine breed can be improved, by any admixture of blood whatever, it is by that of the Highland breed. The chine is, by this cross, obviously improved; and the hardiness, as well as the flesh, and proneness to fat *at a*

certain age, cannot receive injury from this admixture. The only thing to be feared from it is, that the stock will not fat so *early*, as will that of the genuine breed; and, if the opinion of the oldest, gravest, and I had almost said the best, farmer in the District has any weight in this case, this evil effect is much to be apprehended; he is clear in that a "Scot" does not fat kindly even at *three* years old; much less at *two*; at which age many hundred head of cattle are annually fatted in this country.

The fact appears evidently to be, that the Norfolk Husbandmen are in possession of a breed of cattle admirably adapted to their soil, climature, and system of management: and let them cross with caution; lest by mixing they adulterate; and, in the end, lose, irretrievably, their present breed of cattle; as their forefathers, heretofore, lost a valuable breed of horses; the loss of which can, now, be only lamented.

If, through the laudable spirit of improvement, attempts be made with *foreign* breeds, they ought to be made with caution. But, from what I have seen and know of the Norfolk

folk stock, and what I have since seen of the improvement of the breed of cattle in other counties, it appears to me, evidently, that nothing more is wanted to improve the form of the present breed of cattle in Norfolk than a due attention to the breed itself.

While *such* cows, and *such* bulls, as I have sometimes seen, are suffered to propagate their deformities, no wonder some valuable points should be lowered. But if, in the reverse of this unpardonable neglect, men of judgment and enterprize would make a proper selection; and would pay the same attention to the Norfolk breed as is paid to the long-horned breed, in the midland counties, and to the short-horned, in the north of Yorkshire;—every point might beyond a doubt be filled up, and the present valuable qualities be at the same time retained.

But the great cause of neglect in the breeding of cattle in Norfolk, is, that men of judgment and spirit rather choose to purchase of the Scotch drovers, or of their poor and industrious but less judicious neighbours, than to go themselves through the tedious round of rearing. However, if we consider the present universal scarcity of cattle (1786), and that the Scotch-

mén, through recent improvements in their plan of husbandry, are now enabled to fat a part of that stock, which formerly they drove wholly to the southward; it seems highly probable that the Norfolk graziers will, henceforward, find their advantage in encreasing, and improving, their own breed; and they may rest assured, that he who first sets about its improvement will have it in his power to keep the lead; and reap, of course, the highest advantage.

II. Cows.—The prime intention of keeping cows in this country is the rearing of young stock;—the produce of the dairy, unless in the neighbourhood of large towns, being a secondary object.

But the number of cows kept, even by the rearing farmers, is few: eight or ten may be considered as a middling dairy of cows, upon a middle-sized farm;—I mean on the east side of the county.

In West-Norfolk, especially on the marsh-land side towards Cambridgehire, large dairies of cows are kept, for the purpose of making butter; which is sent weekly to London under the denomination of Cambridge butter.

This

This is a fortunate circumstance to the East Norfolk breeders, who draw an increase of rearing calves from that quarter of the county : whose dairymen, in their turn, are benefited, in being by this means enabled to get riddance of their calves, at an early age ; jobbers making it a business to transfer them from one side of the county to the other.

By this means, and by buying up the calves of cottagers, farmers, and gentlemen of the neighbourhood, who do not rear their own, an East Norfolk breeder is able to rear a greater number of calves than the number of his cows amount to.

Ten or twelve calves may, perhaps, be considered as the medial number reared at present, on a farm of one hundred and fifty pounds to two hundred pounds a year.

In the neighbourhood of Norwich and Yarmouth, cowkeeping is frequently applied to the FATTING OF CALVES for the ped markets (see MARKETS).

Also, in the neighbourhood of these and other towns, BUTTER becomes an object of sale.

CHEESE

CHEESE is likewise an article of the ped market; where it is generally sold in a crude recent state; especially in the spring and early part of the summer; when it is bought up at a few weeks, perhaps at a few days old, by the working-people; of whom at that season of the year it is the principal food.

With respect to the management of the Norfolk dairywomen, and their skill in butter and cheese making, little can be said which will redound to their credit. However, in extenuation, it may be said, and with truth, that rank meadows, and new lays, in summer, and turneps in winter and spring, are ill calculated for producing the delicacies of the dairy: and it may be added, that where perfection cannot be hoped for, emulation loses its effect.— Besides, custom has been very kind in reconciling their countrymen to those things which a stranger revolts at; so that they have, now, no motive for endeavouring to correct the rankness of their butter, or the rancidity of their cheese.

Nevertheless, in one thing they are extremely culpable: this is in suffering their cheeses to be devoured, year after year, by a species

species of maggot peculiar, perhaps, to this county, with every appearance of tameness and resignation; as if they were conscious of its being a judgment upon their evil management.

But even in this case, custom is friendly to them: for such is the depravity of taste, when led away imperceptibly by habit, that even the maggots themselves are to some grateful.

This, however, is only a palliation of their crime; for, not unfrequently, the entire dairy, except the ordinary skim cheese, is more or less affected; so that, before Michaelmas, the cheeses would be literally so many bags of maggots, were they not sold off, and consumed, at an age, at which, in any other country, they would not be ranked among human food. I have myself seen a dairy of cheese—that is, the stock then left on hand—in total ruins before that time. An East Norfolk cheese, sound and whole at Christmas, is a rarity; by Ladyday, there is not, generally speaking, a pound of Norfolk cheese, nor even a handful of maggots, to be purchased in the District.

I am

I am the less reserved in my censures of the Norfolk dairywomen in this respect, as I know, from my own experience in the county, that the evil which is here spoken of, and which is a cause of great and unnecessary hardship to the labouring poor, in the winter months, originates, principally, in a want of attention and management. But having in that case, as in others relating to my own experience, minuted the circumstances, as they occurred, or as soon as a regular Minute could be formed of them, I shall not enlarge upon the subject, here, but refer to MINUTE 108.

III. REARING CATTLE.—This subject calls for a threefold division.

1. Calves,
2. Yearlings,
3. Two-year-olds.

I. CALVES. The rearing of cattle is become, in my opinion, a subject of the first importance to this country: a universal and growing scarcity of neat stock is experienced, more or less, throughout the kingdom. I have therefore paid more than common attention to the rearing of calves (the first and most difficult

cult part of the business) in this District: not only as being a primary object in the East Norfolk system, but because the practice here is, in many respects, peculiar to the country.

The *number* has already been mentioned in general terms: it varies, however, with the quantity of meadow or other natural grassland belonging to a given farm; and sometimes, but not always, with the time at which the cows happen to come-in.

The time of rearing.—Some farmers “bring up” all the year round;—rearing every calf he has dropt. Others rear in winter, only; fattening his summer calves for the ped markets; or, at a distance from them, for the butcher. Norfolk farmers, in general, begin early in winter to rear their calves: some so early as Michaelmas; in general, if their cows come-in, before Christmas: not only as being fully aware of the advantage of rearing early; but in order that they may rear as many of their own calves as possible; “drove calves” being always hazardous, and sometimes scarce.

No distinction is made as to sex: males and females are equally objects of rearing, and are both, occasionally, subjected to castration; it
being

being a prevailing custom to spay all heifers intended to be fatted at three-year-old; but such as are intended to be finished at two-year-old are, I believe, pretty generally left "open:" as are, of course, such as are intended for the dairy.

There are two reasons for this practice:—they are prevented from taking the bull too early, and thereby frustrating the main intention; and by this precaution they lie more quietly—are kept from roving—at the time of fattening. This may be one reason why spayed heifers are thought to fat more kindly at three-year-old; and to be better fleshed, than open heifers:

The method of treatment remains now to be explained.—This depends in some measure on the time of rearing: the winter calves require more milk than the later-dropt ones do.

The general treatment of a calf dropt at Christmas may be said to be this: sucks, twice a day, the first fortnight: has the pail, twice a day, for the next month or six weeks: and once a day, for a month or six weeks longer: with hay in a rack, and *turneps* in a manger; and sometimes, with oats and bran among the turneps:

turneps: which last, after a calf has taken freely to them, serves as both meat and drink.

In this consists the chief peculiarity of the Norfolk method of rearing calves: which may be said to be with milk and turneps: the last a species of food, which, in every other part of the kingdom, is, I believe, entirely neglected, or unthought of.

As soon as the weather gets warm enough; the calves are turned out, in the day, among the fatting bullocks; or into a patch of turneps, or upon a piece of wheat, or a forward grass-piece, and housed again at night: until, the days growing long, and the nights warm, and the clover and darnel have risen to a full bite, they are turned out altogether; and continue to have the first bite of every thing, which is good and palatable to them, throughout the summer.

This, as beforementioned, may be called the general treatment of calves dropt at Christmas; but as the managements of no two farmers are exactly the same, I made it my business to attend to the practice of individuals; and as the result of my observations appears in MINUTES 53, and 70, I shall refer the reader to those

those Minutes for further particulars on the subje ct.

2. **YEARLINGS.** The lattermath and stubbles being finished, the yearlings—provincially “buds,”—are put to turneps: either as followers to the bullocks, or have some fresh turneps thrown to them: in either case, they sleep in the par-yard, and generally have a separate par allotted them; though sometimes they are parred with the two-year-olds.

In the yard, the best of the “stover” is allowed them, and, perhaps, a little ordinary hay: it being a maxim pretty generally adopted among good farmers, to keep their young stock as well as they can the first winter.

In spring, and summer, they follow the bullocks, and run in the meadows; or, if these be wanting, are sometimes sent out to summer grafs in the marshes or grazing-grounds. For the agistment price, see the **LIST OF RATES.**

3. **TWO-YEAR-OLDS.** Run in the stubbles and broken grafs till Christmas, or until turneps can be spared them; when they generally follow the bullocks. In winter, they are
always

always "parred" at night; sometimes with the cows; sometimes with the buds; sometimes alone. Good farmers generally keep them separate:—if parred with the buds, they rob them; if with the cows, they are liable to be "horned," and are never at rest: except while the cows are eating up the best of the fodder.

Some farmers, when turneps run short, "put out" their two-year-olds in winter: and others, when they are plentiful, "graze," that is, fat their two-year-olds.

In general, however, they are "kept over-year," on meadows or lays, or are sent to the marshes or grazing grounds, as situations and circumstances point out; and, at Michaelmas, are put to turneps as fatting cattle.

The agistment price for two-year-olds, from Mayday to Michaelmas, varies with the keep. See LIST OF RATES. For further particulars see the MINUTES referred to below.

IV. **BULLOCKS** *.—This is the grand object to which every part of the Norfolk husbandry
more

* "Bullocks."—This is a general term, in Norfolk, for all kinds of cattle at turneps, or other food, with an intention
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more or less tends, and which distinguishes it, and has long distinguished it, from the husbandry of all other countries.

The practice of fattening bullocks on turneps is, however, now beginning to creep into every part of the kingdom : but it may be said to be still in a state of infancy every where, except in Norfolk ; and an accurate account of the practice of this parent county cannot fail of being useful to every other turnep-land District.

Impressed with this idea, I spared no pains, nor let slip any opportunity, of making myself acquainted with the subject. The result of my observations and enquiries I registered as they occurred, and appear in the MINUTES. All, therefore, that remains to be done in this place, is to make a general analysis of the sub-

tention of being fatted ; whether they be oxen, steers, heifers, or cows. A simple general term is much wanted in this case ; and, although the term bullocks may not be entirely free from objection, I shall, in this place, adopt it. Dr. Johnson defines it " a young bull ;" but the most general acceptation of it, at present, is---" an aged ox." Upon the whole its meaning is vague, and it may, without much impropriety, be applied to fattening and fattened cattle.

ject,

ject, and to delineate its outline, so as to place it in a regular and clear light ; and thereby prepare the reader to go through the Minutes with the greater ease and advantage.

The four grand divisions of the subject are,

1. The species of bullocks fatted.
2. The method of obtaining them.
3. The method of fattening them.
4. The method of disposing of them.

1. SPECIES.—The only species of cattle fattened in East Norfolk may be said to be “home-breds” and “Scots.” Some “Irish beace” have, at different times, but not regularly, been brought into the country, and have generally done very well. In West Norfolk, great numbers of Lincolnshire and Yorkshire oxen were formerly, and some few, I believe, are now, fattened ; but in this District they have always been considered as much inferior to the Scotch and home-bred stock.

HOME-BREDS consist of

Steers,
Spayed heifers,
Open heifers,
Barren cows,
“Running calves.”

Z 2

The

The last is a species of fattening cattle peculiar, perhaps, to this country. They are calves, which are suffered to run with their dams until they be a twelvemonth or more old: the cow being all the while at "head keep," of which the calf partakes, as well as of the milk of its dam: which, herself, in the mean time, generally gets fat enough to be sent to Smithfield, with her calf (perhaps, as heavy as herself) by her side.

The SCOTCH CATTLE fattened in Norfolk consist of what are here called

"Galloway Scots;"

"Lowland Scots;"

"Highlanders;"

"Isle of Skys."

Galloway cattle are large, thick, short-legged, mostly hornless, and of a black or brindled colour: the flesh well grained; and the form altogether beautiful:—chine full;—back broad and level;—quarter long and full at the nache; round barrel;—deep girth;—and the bone, head, and chap, in general, fine.

Such, I apprehend, is the genuine original "Galloway Scot;" and a principal part of the bullocks brought into Norfolk under that name
are

are of this description :—but the droves are generally adulterated with a mongrel sort ;—the produce of a cross with a long-horned breed.

This species of adultery is said to be committed and encouraged by the nobility and landed gentlemen of the countries they are bred in ; but the fact appears to be, that they have already one of the finest breed of cattle in the world upon their estates : and it behoves them to hand it down to posterity as pure at least as they received it. In this age of improvement, it might be laudable to endeavour to improve it to the utmost : not, however, by foreign admixtures ; but by giving the most beautiful females to the most beautiful males of their own breed. They appear to me to have much to lose, but nothing to gain, from crossing,—not even with the present long-horned breed of the midland counties..

This species of Scotch cattle appears to be originally of the county of Galloway, which forms the southern extremity of Scotland ; but they are now, it is said, propagated in other

parts of the Lowlands, especially in the richland counties of Lothian, in the neighbourhood of Edinburgh. I have known them fattened to eighty stone ; and have been informed, from authority which I have no reason to doubt, that they have been known to reach near one hundred stone (of fourteen pounds each).

Lowland cattle. The ordinary breed of *black cattle*, in the Lowland counties, are a size below the Galloways,—and appear to be a mixture between these and the Highland breed. Sixty stone is a good weight for a Lowland ox. His form and inclination to fat partake of the Galloway breed : the former, however, is seldom so near perfection as is that of a “true Galloway Scot.” Lowland cattle are some of them horned, some of them polled ; their colour black, or brindled, or dun.

Highland cattle. This seems to be a distinct breed. The size is beneath those of the Lowlands : forty to fifty stone is the ordinary weight of a Highland bullock. In form, flesh, and fattening quality, the Highland breed resemble much that of Galloway ; except that their backs in general are coarser, their bone proportionably

portionably larger, and in that they have, in general, but not always, horns,—of the middle size, and mostly bent upward,—like those of the Welsh cattle—but finer.

In general appearance there is a strong resemblance (their horns apart) between the Highland breed and the black cattle of North Wales; but with respect to flesh and fatting quality,—the main objects,—the comparison is greatly in favor of the Scotch breed; which the gentlemen of North Wales are said to fetch annually out of Scotland, or to buy them up at the English fairs, to be fatted for their own tables.

The Isle of Skys appear to be only a *variety* of the Highland breed; contracted by soil, or climature, or both. They are, in point of size, the lowest in the gradation. But with regard to flesh, fatting, and growth while fatting, they may be said to stand foremost. I have known an Isle of Sky steer, bought at two years and a half old for less than forty shillings, reach, in about twenty months, to fortyfive stone*.

At that age their “growth” in England is astonishing; owing, perhaps, not more to

* But this was the head bullock of a lot of half a score, and is, perhaps, a singular instance.

their nature, than to a change of climature, and a change of food. Much, however, depends upon their age. If they be intended for immediate fattening, four years old is the properest age. An Isle of Sky or a Highland steer at two or three years old will grow, but he will not fat; at five or six he will fat, but he will not grow while fattening, equal to a four-year-old bullock. At this age, the weight of Isle of Skys, when *fat*, varies, from twenty to forty stone.

These are the four *species*, or *varieties*, of cattle which are brought by the Scotch drovers to the Norfolk fairs, and which are bought up and fattened by the Norfolk farmers, under the foregoing names. There may be other breeds, and admixtures of cattle, propagated in Scotland; but not being sent to this market, they are foreign to the present subject.

2. THE METHOD OF OBTAINING BULLOCKS for fattening.—This is either by

Rearing, or by
Purchase.

Some farmers rear all their own fattening stock; others purchase the whole. But the more general practice is to rear part, and buy in part.

Much

Much depends upon situation ; but more, perhaps, upon judgment : and still more, perhaps, upon an ample and regular supply of the *means* of purchase.—It is allowed that the affluent fortunes, which were formerly made by some few Norfolk farmers, were chiefly acquired through a superior skill in the purchase of stock ; seconded by a full supply of money ; by which means they were always able to time their purchase to the best advantage. But in men of inferior judgment, and who have not money at their command to purchase when the price of stock is low, it is undoubtedly prudent to rear the whole, or a principal part, of their own stock ; for, in doing this, they travel a beaten track, and tread on sure ground.

The purchase of homebreds is chiefly at the fairs ;—or at the breeders' houses ; or on the "castle hill" at Norwich, where there is a weekly market ;—sometimes pretty full of different sorts of live stock.

The purchase of Scots is, in this District, chiefly at the fair of St. Faith's, a village near Norwich ; to which the Scotch drovers bring annually great numbers.—See MIN. 27. and

134.

These

These Scotch dealers have a succession of fairs, which keep them some months in the country; during which time a continued stream of cattle is kept flowing from its various sources in Scotland to its general efflux: which is judiciously removed from place to place, that the diffusion may be the more regular and easy.

The sale begins the 9th of September, at *Harleston*, in South Norfolk; where its stay is about a fortnight. From *Harleston* it moves on to *Walspit*, in Suffolk; and returns to *Seching*, near Lynn in Norfolk, the 10th of October. From "Seche" it is removed to *St. Faith's* (its grand station) near Norwich, the 17th of October. Its stay, here, is uncertain: a fortnight, or three weeks, or as long as the demand lasts. There is a fair at *Halesworth*, a few miles within Suffolk, the beginning of November; but this seldom, I believe, closes altogether St. Faith's fair. The 22d of November it recommences in Norfolk at *Hemp-ton-Green*, in the northern part of West Norfolk; where continuing a week, or longer time, it is finally removed to *Hoxone*, on the borders of Suffolk, the beginning of December;

ber; and there continues open until near Christmas.

East Norfolk, as observed above, is principally supplied at St. Faith's. The northern Hundreds sometimes draw an additional supply from Hempton-Green; and the southern ones from Halefworth and Hoxne; which, with the other fair in Suffolk, lie within the reach of the Norfolk farmers.

The Highlanders and Isle-of-Skys are chiefly or wholly oxen; but the Galloway, and other Lowland Scots have a mixture of spayed heifers; a species of fatting-cattle which is coveted by judicious graziers.

The most common age is four years old; but many of the Scotch cattle brought to these fairs are probably much older: some of them have been worked: even some of the Highland oxen are said to be worked at the collieries. There are also many three-year-olds, and some two years old, or under. These are bought to be kept "over-year" in the meadows, marshes, and grazing-grounds.

For the same purpose, two-year-old home-breds are also purchased, the first days of these fairs, as well as at others.

But,

But, for immediate fattening, the desired ages are three years old for homebred, and four years old for Scotch.

3. THE METHOD OF FATTING.—This has been already spoken to in describing the application of TURNEPS; to which the reader is referred; as well as to the MINUTES mentioned at the close of this article, for individual practice. It will nevertheless be proper in this place to take a general view of the subject; thereby endeavouring to place it in a light as perspicuous as may be. The first thing to be considered is,

The *proportion* of bullocks to a given quantity of turneps. This depends on the size of the bullocks, and the quality of the turneps.—The general calculation is a middle-sized bullock to an acre of good turneps. Taking turneps on a par, a fattening bullock and a follower come, perhaps, nearer the real proportion.

The *time* depends on the growth of the turneps and the possession of the bullocks: the homebreds are usually put to turneps about Michaelmas: the Scotch as soon as they are purchased. It is observable, here, that notwithstanding a Scotch bullock, especially of
the

the smaller kind, never saw, perhaps, a turnep; yet, when thrown to abroad, in company with two or three homebreds, he generally soon learns to break his turneps. Some particular bullocks, however, will receive a check before they take to them.

The *place* for fattening bullocks on turneps appears, under the article TURNEPS, to be either

The field,
The yard,
Sheds, or hovels.

The first requires least attendance and attention, and is highly beneficial to light land: the second makes a great quantity of manure, but a waste of stover: the last requires less litter; but incurs a greater portion of labour.

In a dry, open season, bullocks at turneps do best abroad: in wet, pinching weather, best under cover.

Out of these established facts arises an obviously eligible plan of management, where circumstances will admit of it. In autumn, so long as the weather continues moderate, let bullocks remain abroad; but, whenever it sets in very wet, or very severe, take them up
under

under cover;—and there let them remain until they be finished; or until the warmth of spring calls them abroad again.

But the most eligible method of fattening depends on a variety of circumstances:

The soil and situation;

The conveniencies in the yard;

The season; and

The species of stock to be fattened.

Cattle which have been accustomed to lie abroad in a severe climate, will stand the winter in the field better than those which have been used to a sheltered yard, in a warmer climate.

No general plan of management can, therefore, be laid down. All that can be done is, to point out the various modes in use, and leave every man to consider well his own particular circumstances, and make his election accordingly. See TURNIPS, page 287.

4. THE MARKETS FOR BULLOCKS. The consumption is divided between the metropolis and the county. The proportion I never heard guessed at. Perhaps three fourths, perhaps no more than two thirds, of the bullocks fatted in Norfolk, are sent to the London market.

Norfolk

Norfolk is a populous county; not more through the Norwich manufactory, which diffuses itself over a principal part of it, than from the circumstance of Norfolk being an arable country.

The *places* of sale are,
 Smithfield;
 St. Ives*;
 The fairs; and
 The farmer's yard.

Bullocks for the London market are chiefly sent directly to Smithfield: many, however, go by the way of St. Ives; and some few are bought up in the country by the London dealers.

Those sent to London and St. Ives are put under the care of drovers, and generally sold by the salesmen of the respective markets.—Some farmers follow their bullocks to these markets; and sometimes, but very seldom, stand the market themselves.

The advantage of sending bullocks by the way of St. Ives is, that if that market prove a bad one, they are driven on to Stevenage; and if this does not suit, are driven through to the

* St. Ives, in Huntingdonshire.

London

London market. But while they are thus driven from place to place, they are not only accumulating expences, but are shrinking in carcase. From the north-west quarter of the county considerable numbers of bullocks are, I believe, driven to St. Ives, and there is one drover from the northern part of this district.

But the grand market for bullocks fatted in East Norfolk is Smithfield: to which, in the season, they are driven weekly, or twice a week; according to the supply, and the stages of the season.

Smith of Erpingham has long been the common drover of *this* District. He generally begins, about Candlemas, to go once a fortnight: in the latter part of February, and the month of March, once a week: in April, May, and June, generally twice a week: and in August or September, he usually makes one or two journies to take off the surplus of the home consumption, and the "harvest beef," fatted in the marshes, grazing-grounds, and lays, during the course of the summer.

His place of rendezvous is St. Faith's, where, or in his road to it, the farmers meet him with their respective lots.

For

For the Monday's market, he sets out from St. Faith's on Sunday, and reaches London the Sunday following. The distance one hundred and twelve miles.

At Mile-End he is met by the salesmen; who mark, and take, from that time, the charge of the lots which are respectively consigned to them. Sometimes the choice of a salesman may be left to the drover; but, in general, every farmer has his own salesman.

If the owners of the bullocks do not attend the market themselves, it is the drover's duty to see (were it possible) that justice be done to his employers; and to receive the neat proceeds from the salesmen; who deliver accounts in this form :

———" Three Tuns, Smithfield.

Seven beasts sold for Mr. —— the 10th day of June 1782.

1	Waterman	-	14	0	0	Selling (at 1s. 6d.)	0	10	6
1	Beeton	-	13	0	0	Toll & expences	0	2	1
1	Andrews	-	12	10	0	Help - - -	0	1	9
1	Sewel	-	12	0	0	Grass - - -	0	0	0
1	Alexander	-	12	0	0	Drover, J. Smith,	1	15	0
1	Brown	-	12	0	0	Paid yourself -	86	0	8
1	Brown	-	13	0	0				
7			£88	10	0	(Signed) S—l P—n,	£88	10	0
						Beast and sheep salesman."			

The expences are, and have been for many years, invariably the same ; namely, seven shillings and a penny halfpenny a bullock,—great or small ; unless when very large heavy bullocks are sent off, a day or two before the drove, as they sometimes are to ease them on their journey ; in which case the expence of the drift is somewhat more.

These accounts, which are payable at the salesmen's bankers, are delivered to the owners of the bullocks, if they attend ; if not, to the drover ; who formerly brought down the whole amount in money ; but now, principally, in bills, at a short date, upon the Norwich bankers.

The drover's place of payment in this neighbourhood is North-Walsham ; the first market day after the sale. The farmers go to his Inn, where their accounts and cash are ready for them. See Min. 117.

MINUTES ON BREED.

For an instance of the excellency of the *Isle-of-Sky* cattle, see MIN. 40.

For an opinion comparative between the *Scotch* and the *Norfolk* breeds, see MIN. 69.

For

For an evidence in favor of the *Suffolk* breed, see MIN. 69.

For an opinion that *three-year-old Norfolk* will fat as kindly as *four-year-old Scotch*; see MIN. 72.

For an instance highly in favor of the *Irish* breed, see MIN. 110.

For an instance of the excellency of the *Norfolk* breed, see MIN. 119.

MINUTES ON GENERAL MANAGEMENT.

For an instance of a grazing ground being more friendly to heifers than to steers; see MIN. 39.

For reflections on the rearing of cattle, see MIN. 53.

For observations on the practice of distributing rubbing posts in pastured and teathed inclosures, see MIN. 66.

For an instance of the number and species of cattle kept on a middle-sized farm, see MIN. 70.

For general observations on the winter management of store cattle, see MIN. 74.

MINUTES ON COWS AND THE DAIRY.

For instances of sheep being unfriendly to cows, see MIN. 8.

For an opinion that turneps are an excellent food for cows in the spring, see MIN. 83.

For general observations on cheefsemaking, see MIN. 108.

For general observations on making butter, see MIN. 109.

MINUTES ON REARING CATTLE.

For an evidence that young stock will pay for good keep, see MIN. 46.

For a method of rearing calves, see MIN. 53.

For an evil effect of not spaying heifers clean, see MIN. 69.

For various methods of rearing calves, see MIN. 70.

For observations on the winter management of young stock, see MIN. 74.

MINUTES ON BULLOCKS.

Species.

For the comparative value of different *breeds* of cattle for fattening, see MINUTES ON BREED, above referred to.

For

For observations on fattening the Norfolk breed at one-year-old, as "running calves," see MIN. 69.

For reflections on fattening them at two-years-old, see MIN. 112.

Buying.

For an account of the Scotch bullock-fair of St. Faith's, see MIN. 27. and 134.

For an instance of buying the Norfolk breed at Holt fair, see MIN. 39.

For general observations on buying bullocks, see MIN. 110.

For further information on this subject, see MIN. 113.

Fattening.

For a singular circumstance of the grazing grounds of Foulsham being more nutritious to heifers than to steers, see MIN. 39.

For an incident on the fattening of Isle-of-Skys with great success, see MIN. 40.

For an incident on the quantity of turneps eaten, and the process of fattening bullocks in the yard, see MIN. 56.

For an incident on the proportion of bullocks to turneps in the field, see MIN. 57.

For observations on shed and out-door bullocks, see MIN. 69.

For various instances of individual practice, see MIN. 69.

For a method of curing sufflation, see MIN. 72.

For the manner in which bullocks break their turneps, see MIN. 84.

For observations on shed and out-door bullocks, in severe weather, see MIN. 93.

For an incident of practice particularly attended to, see MIN. 97.

For further observations on this incident, see MIN. 102.

For some account of the Fleg grazing, see MIN. 106.

For further observations on the abovementioned incident of practice, see MIN. 110.

For a further progress in the same incident, see MIN. 111.

For an instance of bullocks doing well at grass, though the weather was wet, see MIN. 113.

For some account of grazing in Blowfield Hundred, and in the Yarmouth marshes, see MIN. 118.

Selling

Selling.

For an instance of sale at Smithfield, see MIN. 102.

For an account of Walsbam bullock-fair, see MIN. 105.

For an account of Worstead bullock-fair, see MIN. 107.

For another instance of sale, and the uncertainty of Smithfield market, see MIN. 111.

For an account of Ingham bullock-fair, see MIN. 112.

Observations on a lot sent off to Smithfield, see MIN. 113.

For the drover's method of paying the farmers: with observations on that lot, see MIN. 117.

Profit.

For an instance of great profit by the Isle-of-Sky cattle, see MIN. 40.

For calculations of profit, from the quantity of turneps eaten in the yard, see MIN. 56.

For a calculation on the quantity eaten in the field, see MIN. 57.

For an instance of low profit by Scotch cattle, see MIN. 102.

For fundry instances of great profit by Scotch and Irish cattle, see MIN. 119.

For an evidence that profit depends chiefly on management, see MIN. 110.

For another instance of moderate profit by Scotch cattle, see MIN. 111.

For an instance of great profit by home-breds, see MIN. 119.

It may be proper to observe, that the instances of *profit*, which are here adduced, are taken collectively, much above par. If, in a common year, a bullock, of forty stone, pay half a crown a week for fattening, he is thought to have done tolerably well. Supposing him to take six months "time;" and, in that time, to eat an acre of turneps; the gross produce, on this calculation, will be three pounds five shillings; from which deduct fifteen shillings for straw and attendance, the remainder is fifty shillings for the neat produce of the turneps;—exclusive of the value of the teathe, or the dung arising from the consumption.

But it being evident (at least to my mind) that very much depends upon management, I am clearly of opinion, that, by a judicious attention to breeding, or a proper choice in purchasing;—by laying-out farms conveniently,

veniently, and adapting the mode of fattening to the given soil and situation;—by finishing the bullocks highly, and conducting the sale judiciously, the present par price of two shillings and sixpence a week, for a bullock of forty stone, might be raised without extraordinary exertion, to three shillings or three shillings and sixpence a week:—and, consequently, the neat par produce of an acre of turneps, on the above calculation, to three pounds, or three pounds ten shillings an acre. To this must be added the TEATHE, which, upon the lighter lands, is one of the main supports of the Norfolk system of husbandry.

37. SHEEP.

37.

S H E E P.

NO CIRCUMSTANCE in the Norfolk husbandry surprized me more than that of finding the country in a manner destitute of sheep.

In one of my journies to Gunton, I purposely rode, on horseback, through the center of the county—by Thetford, Watton, Dereham, Reepham, &c. in order that I might catch a general idea of its rural economy.

From the nature of the soil, and from the prevalence of the turnep husbandry, I had conceived it to be the land of sheep: but from the time I crossed the river at Thetford, until I arrived within a few miles of the end of my journey, *I did not see one sheep!*

In the north-west quarter of the county, considerable flocks are kept: but in the eastern and southern divisions the number kept, in the summer months, is trifling; except upon commons, or about the residences of gentlemen; and, except upon some few capital farms,

farms, upon which over-year flocks are kept. But East Norfolk farms, in general, are, in the months of July, August, and September, as free from sheep as elephants;—except, perhaps, some few kept on until harvest for, what is called, “harvest beef;” namely, to be killed for the work-people in harvest.

In and round the park of Gunton, a considerable flock was kept; and it is chiefly from observations on this flock, that I gained my information respecting the Norfolk breed of sheep.

The BREED of Norfolk horses was not formerly, nor its breed of cattle at present, more singular than is its BREED OF SHEEP; which, it is highly probable, has long been preserved in purity;—I mean without adventitious mixture of blood.

There are two *varieties* of this SPECIES of sheep: the one larger (weighing from fifteen to twentyfive pounds a quarter), which is the common stock of the county:—the other smaller (from ten to fifteen pounds a quarter), which are bred chiefly upon the heaths in the neighbourhood of Brandon and Methwold, in the south-west quarter of the county. These

go by the name of "heath sheep;" but differ in no respect from the common sort; except in that of their being smaller, and in that of their wool being finer.

The characteristics of a Norfolk sheep are these:

The carcase long and slender.

The fleece short and fine.

The legs long, and black, or mottled.

The face black, or mottled.

The horns—of the ewes and wedders, middle-sized, and somewhat straight; resembling those of the Dorsetshire ewes, so well known, now, in different parts of the kingdom, as the mothers of house lamb;—but those of the rams are very large, long, and spiral, like the horns of the Dorsetshire ram.

The loin of a Norfolk sheep, of the best mould, is wide, and the hind quarters sufficiently large for the general make; but the fore quarters, in general, are very deficient.—The shoulders low, the back awkwardly high, and the chine sharp, and unsightly.

This is, at least, too generally the case; I have, however, seen some of them with tolerable backs; and I am confidently of opinion, that

that if the Norfolk breeders of sheep would pay less attention to their "countenances" (that is, the colour of their faces) and more to their carcases, the present breed, viewed in a general light, might be very highly improved: not, however, by the introduction of strange breeds, and unnatural crossings; but by a judicious choice of the males and females of their own breed;—which, taken all in all, even at present, appears to be singularly well adapted to the soil and system of management prevalent in this country.

They may be bred, and will thrive, upon heath and barren sheepwalks, where nine tenths of the breeds in the kingdom would starve: they stand the fold perfectly well: fat freely at two years old: bear the drift, remarkably well, to Smithfield, or other distant markets; and the superior flavor of the Norfolk mutton is universally acknowledged.

Therefore, the Norfolk husbandmen, in their sheep, as well as in their cattle, have much to lose: and the almost only thing they have to gain is a better chine; which, with a judicious attention to their own breed, might
beyond

in; as well as to every other rich inclosed grass-land country; and consequently may not be unfit for the paddocks of gentlemen in this or any other District; nor, perhaps, altogether improper for the *East* Norfolk farmers, who keep only a few sheep, for the purposes above-mentioned. But, taken in a general light, as a breed for the county at large, they appear to me to be wholly unfit.—*I believe* they will not live upon the heaths, and open, extensive, unproductive sheep-walks of West Norfolk, so well as the present breed of heath sheep of that country: *I know* they will not stand the fold so well, nor travel so well to the London market, nor sell for so much by the pound when they arrive there, as will the present breed of Norfolk sheep in general; which, awkward in form as they undoubtedly are at present, appear to me, from a knowledge of different breeds, to be better adapted to the soil, situation and system of management of the county at large, than any other breed at present existing in the Island.

THE GENERAL ECONOMY or system of management of sheep in this country is mentioned in MIN. 122, on the sheepshow of Cawston;

ston; in which also the particular practice of this District is so far pointed out as relates to the lambs and crones bought at that fair; which with those of Kenninghall and Kipping, also held in the summer months, form the grand communication between the two sides of the county.

If a farmer do not lay in his intended stock at these fairs, he buys hoggards at the spring fairs; letting them run in the fallows, lays, and stubbles until autumn; and finishing them with turneps the ensuing winter.

For the method of fattening them on TURNEPS, see that article.

For the admeasurement of a *sheepfold*, see MIN. 1.

For an evidence of sheep being *inimical to cows*, see MIN. 8.

For an instance of advantage of *sheepfold* to barley, see MIN. 11.

For an experiment and observations on the *time* of putting the *ram* to the ewes, see MIN. 17.

For an experiment with *sheepfold* for wheat, see MIN. 18.

For

For an incident of *sheepfold* checking the turnep-fly, see MIN. 21.

For an evidence that different *breeds* of sheep affect different species of *food*, see MIN. 75.

For observations on *ewes lambing*, see MIN. 76.

For an instance of the effect of good keep on young *lambs*, see MIN. 78.

For an incident on *crossing* Leicestershire ewes with a Norfolk ram, see MIN. 82.

For an instance of *prolifsickness* in the Norfolk breed of sheep, see MIN. 86.

For an instance of *cutting ridgil* lambs, see MIN. 99.

For a further evidence of an almost total privation of sheep in East Norfolk, see MIN. 106.

For observations on *Cawston sheepshow*, see MIN. 123.

38.

R A B B I T S.

THE SOIL of this county, viewed at large, might be termed a rabbit soil ; and it is highly probable that, before its present system of husbandry took place, a considerable part of it was occupied by this species of livestock.

At present, however, they are, in this District, wisely confined to the heathlets, and the barren hills upon the coast. A level country is unfit for rabbit warrens, but convenient for the plow : on the contrary, rabbits delight in the sides of sandy hills ; which, where turn-wrist plows are not in use, are extremely inconvenient for tillage ; and, when cultivated, are generally unproductive.

The rabbit, on level ground, finds it difficult to make its burrow ; the excavated mould is all to be dragged *upward* to the surface : hence a piece of ground, altogether level, can seldom be stocked successfully with rabbits ;
unless

unless it be first laid up, by art, at a great expence, into inequalities.

On the contrary, against the side of a steep hill, the rabbit has no difficulty to encounter: the declivity affords him a ready vent for his mould; his work is all *down-bill*: and—unless the soil be too stubborn, or too rocky, for the rabbits to work freely among,—a broken hilly country may generally be stocked with advantage; provided a tolerable market for the carcases can be had within reach.

There are, perhaps, few sandy or other *loose-soiled hills*, which would not pay better in rabbit-warren than under any other course of husbandry.

For an instance of an improvement by converting unproductive sandy hills into rabbit-warrens, see MIN. 79.

39.

S W I N E.

THE NUMBER of swine reared and fattened in Norfolk is very considerable : the dairy in summer, the stubbles in autumn, and the barns and stables in winter, furnish a constant supply of sustenance ; while the great quantity of buck raised in this country furnishes an ample source of fattening.

In Norfolk, however, as in other Districts, farmers differ widely about the proper number to be kept, upon a given farm, under given circumstances. It may nevertheless be said that, in general, they are fully aware that a moderate number well-done-to, are more profitable, in the end, than a greater number badly kept ;—yet there are some few men, even in Norfolk, whose half-starved herds are nuisances to the neighbourhoods they are kept in ; without affording either pleasure, or extraordinary profit, to their respective owners.

The

The species of swine, which formerly was universal throughout the country, is, like the sheep, a slender long-legged animal; but, like those, is of quick growth, and prone to fat at an early age: I have seen them, at six months old, near three quarters grown, and as fat as pigs in general are, at nine or twelve. Their size is not large: fifteen to twenty stone (fourteen pounds) is a good weight for a fat well-grown hog.

But the "old original fort" is now nearly lost; the Chinese and Berkshire breeds have of late been introduced; so that, at present, Norfolk exhibits the same motley mixture of breeds, which may be seen in almost every other county in the kingdom.

Farmers in general rear their own pigs: keeping, according to the size of their farms, one or more sows, which in general are fatted young, *and spayed before they be fatted*: through which means their flesh is thought to be much improved.

They are fatted almost universally on buck; which is sometimes crushed, and sometimes given to them whole. It is a quick good fat-

B b 3

ting;

ting ; somewhat similar to barley ; not so good as peas.

The consumption lies principally with the county : some few, but I believe no great number, are sent to the London market.

They are in general killed as porkers,—and either carried to the ped market, or pickled for family use ; not put down in tubs, for keeping, in the south-of-England manner ; but only immersed in brine, for present use ; and in this manner are continued to be temporarily preserved, from time to time, throughout the year : a species of household management I have not met with elsewhere,

For a singular instance of fasting hogs loose in a yard, see MIN, 52.

40.

P O U L T R Y.

NORFOLK is celebrated, and justly, for its TURKIES. The species is large ; their flesh, nevertheless, fine ; and the number reared greater than that produced in any other District of equal extent ; owing, perhaps, to one circumstance. It is understood, in general, that, to rear turkies with success, it is necessary that a male bird should be kept upon the spot, for the same purpose that a gander, a drake, or a male fowl is kept ; namely, to impregnate the eggs individually. This deters not only cottagers, who are afraid of the expence of keeping a gluttonous turkeycock the year round, but many farmers, who dislike the noise and troublesomeness of these animals, from breeding turkies. But the good housewives of this country know that a daily intercourse is unnecessary ; and that, if the female be sent to a neighbouring male previous to the season of exclusion, one act of impregnation is sufficient

for one brood. Thus relieved from the expence and disagreeableness of keeping a male bird, most little farmers, and many cottagers, rear turkies. This accounts for the number: and the species, and the food they are fattened with (which, I believe, is wholly buck) account for their superior size and quality.

With respect to GEESE, DUCKS and FOWLS of this country, nothing is noticeable; except that they are, in general, below the common size, and that it is a practice to put young goslings upon green wheat: a piece of housewifery which perhaps is peculiar to the country.

Poultry of every species are sold, in the markets, ready picked and skewered fit for the spit; and are, in general, so well fattened, and dressed up in such neatness and delicacy, as shew the Norfolk housewives to be mistresses in the art of managing poultry.

41. DECOYS.

41.

D E C O Y S.

THE LAKES, and large pools, which abound in the southern Hundreds of East Norfolk, are the nurseries of innumerable flights of "wildfowl," of various species, but principally ducks; which are taken in great numbers in decoys, formed on the margins of these waters; and which, in eligible situations, may well be considered as objects of rural economy.

Much judgment is requisite in forming and managing a decoy. A gentleman in this neighbourhood had a person out of Lincolnshire to make one for him. But, after a great expence of cutting pipes, fixing skreens, nets, &c. it proved unsuccessful. The pipes were too straight, too close and confined, and too narrow at the mouth; without any banks for the wildfowl to bask upon. Upon the whole, it was too much *like* a trap to be taken.

The

The leading principles of a decoy are these:

The wild duck is a very shy bird, and delights in retirement. The first step, therefore, is to endeavour to make the given water a peaceful asylum, by suffering the ducks to rest on it undisturbed. The same love of concealment leads them to be partial to waters whose margins abound with underwood and aquatic plants: hence, if the given water is not already furnished with these appendages, they must be provided; for it is not retirement, alone, which leads them into these recesses, but a search after food, also.

Nevertheless, at certain times of the day, when wildfowl are off their feed, they are equally delighted with a smooth, grassy margin, to adjust and oil their plumage upon. On the close-pastured margins of large waters frequented by wildfowl, hundreds may be seen amusing themselves in this way: and, perhaps, nothing draws them sooner to a water than a conveniency of this kind:—hence it becomes essentially necessary to success to provide a grassy, shelving, smooth-shaven bank at the mouth of the pipe, in order to draw the fowl, not only to the water at large, but to the desired part of it.

Having,

Having, by these means, allured them to the mouth of the pipe, or canal, leading from the water to a tunnel net, fixed at the head of it; but hid from the sight among trees and aquatic plants; the difficulties now remaining are those of getting them off the bank into the water, without taking wing; and of leading them up the pipe to the snare which is set for them.

To get them off the bank into the water, a dog (the more he is like a fox the better) steals from behind a skreen of reeds, which is placed by the side of the pipe to hide the decoyman, as well as his dog, until the signal be given. On seeing the dog, the ducks rush into the water; where the *wildfowl* consider themselves as safe from the enemy which had assailed them.

But among the wildfowl, a parcel (perhaps, eight or ten) of *decoy-ducks* have mixed, and were, probably, instrumental in bringing them, with greater confidence, to the bank.—As soon as these are in the water, they make for the pipe; at the head of which they have been constantly fed; and in which they have always found an asylum from the dog. The wild-

wild-ducks follow; while the dog keeps driving behind; and, by that means, takes off their attention from the trap they are entering.

As soon as the decoyman, who is all the while observing the operation through peep-holes in the reed skreen, sees the entire shoal under a canopy net which covers and incloses the upper part of the pipe, he shews himself; when the wildfowl instantly take wing; but their wings meeting with an impervious net, instead of a natural canopy formed of reeds and bullrushes, they fall again into the water, and, being afraid to recede, the man being close behind them, push forward into the tail of the tunnel net which terminates the pipe*.

This being the use of the pipe, its form becomes obvious. It ought to resemble the outlet of a natural brook, or, a natural inlet or creek of the principal water. The mouth ought to be spacious, and free from confine-

* I was told by the proprietor of a decoy, who is himself fond of the diversion, and whose veracity I have no reason to doubt, that he has, in this way, caught "nine dozen at a push."

ment,

ment, that the wildfowl, on their first rushing into the water, and while they have yet the power of recollection, may be induced to begin to follow the tame ducks; and for the same purpose it ought to be crooked, that its inward narrowness, and nets, may not, in the first instance, be perceived. The lower part of a French horn is considered as the best form of the pipe of a decoy.

One material circumstance remains yet to be explained. It is the invariable nature of wildfowl to take wing with their heads toward the wind; and it is always imprudent to attempt to take them in a decoy, unless the wind blow down the pipe: for, while their enemy is to leeward of them, they have less scruple to go up the pipe, making sure of an escape by their wings. But, what is of still more consequence, if the wind set up the pipe, when they take wing under the canopy net, some of them would probably escape (a circumstance always to be dreaded), and those which fell again into the water would fall, of course, with their heads toward the wind, and would, with greater difficulty, be driven into the tunnel.

This

This circumstance is so well known, by decoymen in general, that every decoy is, when circumstances will admit of it, furnished with three or four different pipes, pointing to distinct quarters of the horizon, that no opportunity may be lost on account of the wind.

42. BEES.

42.

B E E S.

A CONSIDERABLE quantity of honey is collected in Norfolk ; but, in general, it is of an inferior quality : owing, as it is generally believed, to the quantity of buck which is annually grown in this country, and which is highly grateful to bees ; affording them an ample supply of honey.

It does not, however, appear clear to me, that the inferior quality of the Norfolk honey is owing to its being collected from this plant. It resembles, in colour and smell, the honey of the north of England, collected from the heaths, moors, and fells, which abound in that part of the island : and it appears to me probable, that the brownness and rankness of the Norfolk honey is owing to the same cause ; namely, heath ;—which not only abounds on the little heathy wastes, which occur in almost every part of the county ; but seems to
be

be a natural production of the soil in general ; frequently rising, even in good soil, on ditch-banks, and other uncultivated places ; so that the evil, if not wholly, is, in part, occasioned by the heath ; which, it is a notorious fact, affords much honey, but of a bad quality.

I will not, however, infer from this, that buck is productive of fine honey, and that it has no share in the debasement of the Norfolk honey. The flowers of buck have no doubt a *powerful, luscious* smell, which is *disagreeable* to many people ; but are not those of beans equally powerful, equally luscious, and to some persons equally disagreeable ? I only wish that the evil effect of buck upon the quality of honey may be *doubted*, until it be *proved*, by accurate experiments.

For an instance of a depopulated hive being taken possession of by a new colony, see MIN. 126.

LIST

L I S T
O F
RATES AND PROPORTIONS
I N
N O R F O L K.

THE MOTIVE for forming a register of rates and proportions was; principally, my own practice. A man who sits down to practise in a District whose customs he is a stranger to; has many difficulties to encounter. An ignorance of the current prices of materials, labour, and produce; is not one of the least; and he finds it expedient to make himself acquainted with these particulars, as soon as possible.

VOL. I.

C c

My

My motive for endeavouring to perfect the list, and for publishing it, is threefold. First, it will be a proper, and, in some measure, a necessary appendage to the present volumes. Second, it may be a guide to the inexperienced: A gentleman, or any man, who undertakes the management of an estate, or a farm, without having been regularly initiated in the employment, stands, in his own country, in a situation similar to that which a practitioner finds himself in, when he first enters a fresh District: and the present List may not be found useful to the inexperienced in Norfolk, only; but may serve, in some measure, as a guide to those in other countries: for although the prices of labour and produce vary in every District; yet an authentic register of those of any *one*, may serve to lessen the number of impositions which gentlemen are liable to, on their first entrance into the field of practice. And, lastly, a *collection* of registers of rates of labour, in different and distant Districts, will not only be a still better guide to the beginner; but may be found useful to practitioners in general; in assisting them to regulate their respective lists of prices.

The

The particulars which I collected in Norfolk fall, aptly, under the following heads:

I. BRICKLAYERS WORK.

1. Materials.
2. Labour.
3. Proportions.

II. CARPENTERS WORK.

1. Materials.
2. Labourers.

III. THATCHERS WORK.

1. Materials.
2. Labourers.
3. Proportions.

IV. WOODLANDS AND HEDGES.

1. Produce.
2. Labour.

V. HUSBANDRY.

1. Yearly servants.
2. Day labourers.
3. Road team-work.
4. Soil process.
5. Manure process.
6. Seed process.
7. Vegetating process.
8. Harvest process.
9. Barn management.
10. Markets.
11. Grassland.

I. BRICKLAYERS WORK.

1. MATERIALS.

Common red bricks*, 15 to 16s. a thousand.

Hard-burned, 16 to 17s. a thousand.

Stone-coloured, 21 to 23s. a thousand.

Flooring bricks, 9 inches square, 8s. a hundred.

————— 12 inches square, 18s. a hundred.

————— 18 inches square, 50s. a hundred.

Common pantiles, 50s. a thousand.

Glazed pantiles, 90s. a thousand.

Plane tiles, 16s. a thousand.

Ridge tiles, 80s. a thousand.

Pipe-drain bricks, 14 to 18s. a hundred.

"Dreeps"—offset bricks, 20s. a thousand.

"Lumps"—barn-floor bricks, 30s. a thousand.

—————large ditto, 50s. a thousand.

Old bricks (half-bricks, half-bats), 12s. a thousand.

Old foundation blocks (rough masses of brick and lime cemented together), 2s. 6d. a load.

* Gage, ————nine inches long; four inches and a quarter wide; and two inches and one-eighth thick.

CASTING

Castling and carting the clay, and making and burning bricks, 7*s.* a thousand.

— — pantiles, 30*s.* a thousand.

Taking down brick walls, and cleaning the bricks, 2*s.* 6*d.* a thousand ; reckoning two bats for one brick.

Cleaning loose bricks, 2*s.* a thousand.

Price of sea stones, 1*s.* to 1*s.* 6*d.* a load.

Pulling down old sea stone walls, and clearing and fortifying the stones, 5*s.* a square statute rod (namely, about 30 square yards).

Lime, 9*s.* to 10*s.* 3*d.* a chaldron (of 32 bushels).

Castling and carting marl and burning it into lime, 18*d.* and beer, or 20*d.* a chaldron.

One chaldron of coals (36 bushels) burn 7 chaldron of lime (32 bushels).

Clay, 1*s.* a load.

Hair, 1*s.* to 14*d.* a bushel.

Sap laths, 14*d.* a bundle.

Pantile laths, 7*s.* a bundle.

2. LABOUR.

Journeymen's wages, 20*d.* and beer, or 1*s.* 11*d.* a day.

Labourer's wages, 1*s.* and beer, or 1*s.* 3*d.* a day.

Laying bricks, 10*d.* a square yard, (of 14 inch work ; that is, one and a half brick thick).

Foundation, 1*s.* (the same thickness).

Labour and lime, 20*d.* a yard.

Laying pantiles on interlaths and mortar, 4*s.* a square (of 100 square feet).

Plastering, 2*d.* a square yard.

Ceiling, 4*d.* a square yard.

Rendering, that is, one coat of plastering) between spars, 1*d.* halfpenny a yard.

Laying brick floors in mortar, 3*d.* a yard.

Laying barn floors with clay, 4*d.* halfpenny to 6*d.* a yard.

Laying hay-chamber floors with ditto, 4*d.* halfpenny to 6*d.* *.

Daubing on studwork, 4*d.* halfpenny a yard.

Stopping and plastering old daubing, 1*d.* a yard.

3. PROPORTIONS.

A square yard of 9 inch work (that is, a brick in length thick) takes about one hundred and twenty bricks (the gage small).

One chaldron of Norfolk lime will lay about two thousand bricks.

* Tempering the clay and dressing the floor included.

One

One load of sea stones will pave about ten square yards.

One load of clay will lay (in the Norfolk manner) about eight square yards of barn-floor.

II. CARPENTERS WORK.

I. MATERIALS.

Oak timber as it stands, 3*l.* 3*s.* to 4*l.* a load (of forty feet).

Ditto in the stick, 50*s.* to 60*s.* a load.

Ash as it stands, 40*s.* to 50*s.* a load of 44 feet; allowing 4 feet for bark.

Ditto, in the stick, 30*s.* to 40*s.* a load of 44 feet.

Poplar, as it stands, 30*s.* to 40*s.* a load of 44 feet.

Alder, as it stands, 20*s.* to 30*s.* a load of 44 feet.

2. LABOUR.

Journeyman carpenter's wages, 18*d.* and beer, or 21*d.* a day.

A foreman carpenter's wages, 2*s.* and beer, or 2*s.* 3*d.* a day.

A joiner's wages, 2*s.* 3*d.* and beer, or 2*s.* 6*d.* a day.

III. THATCHERS WORK.

I. MATERIALS.

Reed, 3*l.* to 3*l.* 3*s.* a hundred fathom (of 6 feet).

Cutting and binding reed, 25*s.* a hundred.

Cutting and binding gladdon, 30*s.* a hundred.

Taking off old reed and binding it, 10*s.* a hundred.

New "tar-rope" (three strands), 3*s.* 6*d.* to 4*s.* a stone (of fourteen pounds).

2. LABOUR.

Day's work of a man and boy, 2*s.* 6*d.*

Laying reed, a halfpenny a foot; or, 4*s.* 2*d.* a square.

Laying straw, the same.

Setting on "roofing," 3*d.* to 4*d.* a foot in length.

3. PROPORTIONS.

A hundred of reed covers five square:

A load of straw about two square.

A square of reed takes about five pounds of tar-rope.

A load of straw will make about 25 feet of "roofing."

IV.

IV. WOODLANDS AND HEDGES.

I. PRODUCE.

For prices of timber, see CARPENTERS WORK.

Oak bark, 10s. to 12s. each load of timber.

Top wood, 8s. to 10s. each load of timber.

Round wood, (the naked boughs) 12s. to 15s. a waggon load*.

Bakers' faggots, 15s. to 18s. a hundred (of one hundred and twenty).

Spray faggots, 12s. to 14s. a hundred (of one hundred and twenty).

"Bushel blocks†"—10s. a load (of forty blocks).

2. LABOUR.

"Grub-felling‡" timber from 1s. to 18d. a load of timber, together with the "ground-firing;" that is, the roots.

* A full waggon load of round wood piled up rough (not cut into lengths) measured on a par, nine feet long, four and a half feet wide, and four and a half feet high:

† Rough firing blocks cleft out of decayed pollards, roots, or other offal wood; each block being *supposed* to be the size of a bushel.

‡ Partially grubbing.—See PLANTING.

Cutting

Cutting off the round wood, 1*s.* a load.

Tying wood faggots, 2*s.* 6*d.* to 3*s.* a hundred (of six score).

Tying furze faggots, 2*s.* to 2*s.* 6*d.* a hundred (of six score).

Riving bushel blocks, 4*s.* a load.

Riving half-bushel blocks, 5*s.* to 6*s.* a load (of eighty blocks).

Riving half-bushel from short ends, when little sawing is wanted, 4*s.* a load.

Riving small billet, 1*d.* a score.

Riving plaistering laths, 6*d.* a bundle.

Tolerably good white-thorn layer, at 4*s.* a thousand,

Oaken layer, three or four years old, to lay into hedges, 1*s.* a hundred.

Gathering haws, 8*d.* a bushel.

Gathering acorns, 1*s.* a bushel.

Gathering ash keys, 6*d.* a bushel, heaped and pressed down*.

Double-digging two spits and a crumb, 1*s.* a square rod (of seven yards).

Price of furze seed, 15*d.* a pound.

* These prices vary of course with the plenty or scarcity of the different articles in a given year. The above are low prices.

Making

Making a new six-foot ditch, planting quick, and setting a hedge, 1*s.* and beer, or 14*d.* a rod (of seven yards).

Re-making an old ditch, scouring, facing, backing, and setting a hedge, 7*d.* to 10*d.* and beer.

Cutting thorns, 1*s.* a waggon load.

Backing and hedging, 5*d.* a rod.

Backing without hedging, 3*d.* a rod.

Grubbing up hedges and borders, 6*d.* to 1*s.* a rod and the "small firing," that is, the chips and smaller roots. See p. 112.

V. HUSBANDRY.

I. YEARLY SERVANTS.

Yearly wages of a head man, 8*l.* to 10*l.*

Yearly wages of a second man, 4*l.* to 6*l.*

Yearly wages of a harrow boy, 40*s.*

Yearly wages of a woman, 3*l.* to 3*l.* 3*s.*

Yearly wages of a girl, 30*s.* to 40*s.*

2. DAY LABOURERS.

Day wages of a common man*, in winter, 1*s.* and beer.

Day wages of a common man, in summer, 1*s.* 1*d.* and beer.

* A teamer man is allowed 1*s.* a week extra, for "horse money."

Harvest

Harvest wages, 35s. to 40s. and board during harvest, whether it be short or long.

Day wages of a woman, 6*d.* and beer, and in harvest also board.

3. ROAD TEAM-WORK,

Five horses, one man and waggon, 10s. a day*.

Teamerman's road allowance, 6*d.* a day's journey.

4. SOIL PROCESS,

Plowing,—whether it be breaking up a fallow or stirring it, 2*s.* 6*d.* an acre for man and horses.

Seed-plowing (especially for wheat in narrow ridges) seldom done by the acre,

5. MANURE PROCESS.

Casting marl, 3*d.* to 6*d.* a load†.

* Instance of four horses one man and two waggons in hay time, for 7*s.* 6*d.* a day.

† One individual gives 4*d.* in leisure-times, and 6*d.* in turnep-hoing, a load for casting; besides the uncallowing, which he pays for extra by the day. One man and big boy fill twelve loads a day; the team (five horses one man) carrying that number a short distance. Total expence about 18*d.* a load.

Another gives 3*d.* to 4*d.* for casting (besides uncallowing). A team carries six loads about half a mile.—One man fills by the day.

Filling

Filling marl, 2*d.* a load.

Spreading marl, 9*d.* to 1*s.* an acre.

"Outholling" (scouring out the rich mould from the bottoms of ditches), 1*d.* to 2*d.* a rod (of seven yards).

"Turning up borders," (that is, digging up the topsoil, and laying it in a ridge with the grass-side downward) 1*d.* a rod, for a yard wide, if free from roots or other obstructions.

Filling mould,—generally done by the day.

Turning up muck in the yard,—by the lump.

Turning muck heaps, 1*d.* a load.

Filling muck, 1*d.* a load.

Spreading muck, 8*d.* to 10*d.* an acre.

6. SEED PROCESS.

Wheat, generally sown by the day.

Barley, &c. 2*d.* an acre.

Turneps, 2*d.* an acre.

Clover and ray-grass (mixed), 2*d.* an acre.

7. VEGETATING PROCESS.

Hoing turneps,—first hoing, 3*s.* 6*d.* to 4*s.*

—second hoing, 2*s.* to 2*s.* 6*d.*—the two hoings, 6*s.* an acre, and beer.

Weeding, 6*d.* and beer; or 6*d.* to 5*s.* an acre.

Stonepicking, 2*d.* an acre.

8. HAR-

8. HARVEST PROCESS.

Mowing clover and ray grafs, 1*s.* to 18*d.* an acre, and beer.

Mowing *grafs*, 18*d.* to 21*d.* an acre, and beer.

Sweeping broken grafs in pastures, &c. about 1*s.* an acre:

Reaping wheat, 5 to 6 or 7*s.* an acre.

Mowing barley, &c. 1*s.* an acre.

Dragraking, 2*d.* an acre.

Thatching ricks, 8*d.* a square; or more commonly 6*d.* a yard, in length, for both sides, whether the roof be deep or shallow:

9. BARN LABOUR.

Thrashing wheat, about 1*s.* a coomb, and beer.

Thrashing barley, oats, and buck, 6*d.* to 8*d.* a coomb, and beer.

Thrashing peas, 9*d.* a coomb, and beer.

Thrashing clover seed, 6*s.* a bushel.

Sifting cleaned corn, 1*d.* a coomb.

Skreening and putting up such corn, 6*d.* a last.

Cutting chaff, 18*d.* to 20*d.* a score; or 18*d.* a day and board! (the machine in use a bad one.)

10. MARKETS.

10. MARKETS.

The Norfolk bushel, eight and a quarter gallons.

Eighteen stone a coomb, of four bushels, is esteemed a good weight for wheat: twenty stone has been produced; that is, sixtythree to seventy pounds a bushel, of eight and a quarter gallons; or about sixtyone to sixtyeight Winchester.

11. GRASSLAND.

Agistment price for the summer; namely, from Mayday to Michaelmas; in marshes or grazing ground, at head keep;—

For two-year-olds and small Scotch cattle, 30s. to 35s.

For yearlings, 18s. to 21s.

Agistment price for the summer; in meadows, or at second grafs;—

For two-year-olds, 18s. to 20s.

For yearlings, 10s. to 12s.

Agistment price, by the week, in summer;

For bullocks, at head grafs, 2s.

For sheep, at head grafs, 3d.

Agistment

Agistment price, by the week, after Michaelmas;

For fattening cattle, at head, 1s. 6d.

For two-year-olds, dry cows, &c.; at second grass, 1s.

For yearlings, at second grass, 8d.

For sheep, 2d.

Cutting open drains in moory meadows, three feet wide, 2d. to 4d. a rod (of seven yards), and beer.

Scouring such drains annually, a halfpenny a rod.

Scouring main drains (five or six feet wide) annually, 1d. a rod.

Scouring main drains the second year, 2d. a rod.

Scouring main drains the third year, 3d. a rod.

END OF THE FIRST VOLUME.

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